Bay Area Air Quality Management District

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Permit Evaluation
and
Statement of Basis
for
RENEWAL of

MAJOR FACILITY REVIEW PERMIT

for

Republic Services Vasco Road, LLC
Facility #A5095

Facility Address:
4001 North Vasco Road
Livermore, CA 94551

Mailing Address:
4001 North Vasco Road
Livermore, CA 94551

Application Engineer: Loi Chau
Site Engineer: Loi Chau

Application: 28411

October 2018

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Renewal of Major Facility Review Permit
For Republic Services Vasco Road, LLC, Site A5095
Application #28411

A. BACKGROUND

Republic Services Vasco Road, LLC is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Title 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR) because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the "potential to emit" (as defined by BAAQMD Regulation 2-6-218) more than 100 tons per year of a regulated air pollutant (in this case, carbon monoxide). Therefore, this facility is required to have an MFR permit pursuant to BAAQMD Regulation 2-6-301.

In addition, it is a designated facility as defined by BAAQMD Regulation 2-6-204. The Emission Guidelines for Municipal Solid Waste Landfills (40 CFR Part 60, Subpart Cc) require the owner or operator of a landfill subject to this part and having a design capacity of 2.5 million megagrams and 2.5 million cubic meters or more to obtain a federal operating permit pursuant to Part 70. This facility is a designated facility because it meets the criteria listed in 40 CFR, Section 60.32c(c). Therefore, this facility is also required to have an MFR permit pursuant to BAAQMD Regulation 2-6-304.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR). The permits must contain all "applicable requirements" (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is A5095.

This facility received its initial Title V permit on February 5, 2004. The permit was revised on March 12, 2004, June 17, 2004, August 15, 2007, September 29, 2011, June 4, 2012 and January 27, 2015. Application # 28411 is for a permit renewal. Although the current permit expired on June 3, 2017, it continues in force until the District takes final action on the permit renewal. The standard sections of the permit have been upgraded to included standard language used in all

Title V permits. This proposed renewal permit also includes equipment and permit condition changes that were evaluated by the District pursuant to New Source Review (NSR) Applications #20685 and Title V Minor Revision #27950, NSR Application #29010, and NSR Application #29140 and Title V Application #29141. Pursuant to Regulation 2, Rule 6, section 416, the District has reviewed the terms and conditions of this Major Facility Review permit and determined that they are valid and correct. This review included an analysis of applicability determinations for all sources, including those that have been modified or permitted since the issuance of the initial Major Facility Review Permit. The review also included an assessment of all monitoring in the permit for sufficiency to determine compliance. The proposed renewal permit clearly shows all changes to the permit in strikeout/underline format.

Republic Services Vasco Road, LLC has submitted the following permit application for new or modified operations that are still undergoing District review: NSR Application #28462 for a diesel engine. Since the District's review of these projects is not complete, these applications will not be included in this Title V permit renewal. After the District has completed the evaluation for these projects, the projects will be incorporated into the Title V permit in accordance with the Title V permit revision procedures in Regulation 2, Rule 6.

B. FACILITY DESCRIPTION

Republic Services Vasco Road, LLC (Facility #A5095) is located at 4001 North Vasco Road in Livermore, CA. The Vasco Road is an active MSW landfill that is equipped with a continuously operated landfill gas collection system. For active landfills, the District has changed the manner in which landfill permits are described. For this facility, the single source number for Vasco Road Landfill (S-1) has been split into three source numbers: S-1 for the waste decomposition process, S-12 for the waste and cover material dumping process, and S-13 for the excavating, bulldozing and compacting activities. These source description changes were made to improve the emission calculation methodology for each of these processes. In addition to the landfill, this facility includes the following District permitted sources: a Non-Retail Gasoline Dispensing Facility (S-7), a Portable Diesel Engine that powers a truck tipper (S-9), a Green Waste Processing Operation (S-14), a Wood Waste Processing Operation (S-15), and a Landfill Gas Flare (A-4).

The Vasco Road Landfill is a 323-acre Class III disposal site that accepts household, commercial, industrial, construction, and demolition waste but does not accept any hazardous waste or contaminated soil. The maximum design capacity of the site is 31.65 million cubic yards (24.2 million m^3). The waste decomposition process at S-1 generates landfill gas, which contains primarily methane and carbon dioxide (which are greenhouse gases: GHG) and also contains small amounts of non-methane organic compounds (NMOC) and sulfur compounds (mainly hydrogen sulfide). Many of the non-methane compounds (NMOCs) found in landfill gas are precursor organic compounds (POC), and some NMOCs are hazardous air pollutants (HAP) or Toxic Air Contaminants (TAC). Various local, state, and federal regulations require that landfill

gas be collected and controlled to reduce POC and HAP or TAC emissions to the atmosphere. In order to meet these requirements, the landfill at this site is equipped with an active landfill gas collection system and a landfill gas control system.

Active landfill gas collection systems consist of perforated pipes that are buried in the refuse at numerous locations, solid pipes referred to as laterals and headers, and blowers. The perforated pipes are called horizontal collectors or vertical wells, depending on the orientation of the pipes within the refuse. The solid pipes connect to horizontal collectors and vertical wells to the blowers. The blowers collect landfill gas by creating a vacuum in the buried refuse that draws landfill gas into the pipes. The blowers vent this collected landfill gas to the landfill gas control system. The gas collection system at this site originally included 5 horizontal collectors and 83 vertical wells. Various alterations to the landfill gas collection system has expanded the system to include 6 horizontal collectors, 115 vertical well, 0 leachate horizontal collector, and 4 leachate risers. Per Application #29010, the facility is authorized to alter the landfill gas collection system by installing up to an addition 100 vertical wells and 20 horizontal collectors and decommissioning up to 150 vertical wells and 15 horizontal collectors to improve the efficiency of the system.

The bulk of the landfill gas generated at the facility is diverted to the Ameresco Vasco Road facility (Site #E0432). The Ameresco facility uses the landfill gas to operate 2 internal gas combustion engines. The remaining gas is abated by A-4 Landfill Gas Flare. The enclosed flare operates at 120 MM BTU/hour. This flare destroys most of the methane, organic compounds, sulfur compounds, HAP, and TAC in the landfill gas, but also produces secondary combustion pollutants including: nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM_{10}), formaldehyde, and acid gases (such as hydrogen chloride and hydrogen fluoride).

This facility uses engines to provide power to other equipment operating at this site. Engines produce combustion emissions including NO_x, CO, POC, SO_2, PM_{10}, and HAP. Some of these engines are exempt from District permit requirements, because the engines are small engines with an output rating of less than 50 bhp, or because the engines are registered portable engines (registered through the state-wide portable equipment registration program, PERP) that remain at this facility for less than 12 consecutive months. Stationary engines and portable engines that remain at a single facility for more than 12 consecutive months are required to have a District permit to operate. The Title V permit for this facility currently includes a Portable Diesel Engine (S-9) that provides power to the hydraulic lift on the truck tipper. The truck tipper raises one end of the waste delivery trucks to facilitate the dumping of waste onto the active face of the landfill. The S-9 diesel engine is considered to be a portable engine (pursuant to CARB definitions) and a nonroad engine (pursuant to federal definitions), because it moves around within the facility, does not remain at any single on-site location, and does not return to the same on-site location. However, S-9 is required to have a District permit to operate because it remains at the facility for more than 12 consecutive months. In accordance with Regulation 2, Rule 6, Sections 113 and

114, PERP registered portable engines and non-road engines are not subject to Regulation 2, Rule 6, Major Facility Review. Since S-9 is a nonroad engine and nonroad engines are exempt from Title V permitting requirements pursuant to Regulation 2-6-114, the District is removing S-9 from this Title V renewal permit. Exempt equipment will be identified in Section II of the permit.

The S-7 Non-Retail Gasoline Dispensing Facility (GDF #9551) located at Site# A5095 includes: one 1,000 gallon capacity aboveground gasoline storage tank, one gasoline dispensing nozzle, a 10,000 gallon diesel fuel storage (exempt from District permit requirements), and one diesel fuel dispensing nozzle (exempt from District permit requirements). The gasoline and diesel are used to fuel on-site vehicles and equipment such as bulldozers, compactors, trucks, and portable diesel engines. Gasoline storage and transfer operations emit POCs and HAPs.

In 2013, Republic Services added S-14 Green Waste Processing Operations abated by A-14 Water Sprayer and S-15 Wood Waste Processing Operation abated by A-15 Water Sprayer. The facility is permitted to process 16,000 tons of green waste per 12-month period and 5,000 tons of wood waste per 12-month period. Portable grinders operated by a third-party contractor will grind the materials for processing at the facility. Since the portable engines used for grinding operations are registered with PERP, emissions from operating the diesel engines are considered exempt.

Since the Title V permit renewal for this facility was issued in 2012, this facility has undergone a number of equipment changes and permit condition revisions. The impacts of these changes on the emissions from this facility are discussed below. Green waste (S-14) and wood waste (S-15) processing operations began at the facility in 2013. The operation of S-14 and S-15 resulted in a minor increase in PM emissions due to the abatement of particulates using the water sprayers (A-14 and A-15). In 2015, Republic Services began diverting landfill gas to the Ameresco Vasco Road plant for power generation. The diverted landfill gas resulted in an emissions reductions by reducing the volume burned by the landfill gas flare. Site specific emission factors were calculated for S-1 and A-4. The recalculated emission factors resulted in a reduction of POC emissions at the facility. The actual emission changes are presented below.

	2011 Actual Emissions	2017 Actual Emissions	Emission Changes
	tons/year	tons/year	tons/year
PM_{10}	185.7	36.2	-149.5
CO	126.6	1.7	-124.9
POC	72.2	20.8	-51.4
SO_2	36.0	3.0	-33.0
NO_x	33.2	2.9	-30.3

C. PERMIT CONTENT

The legal and factual basis for the permit follows. The permit sections are described in the order presented in the permit. Routine changes to the standard permit text in Sections I "Standard Conditions", III "Generally Applicable Requirements", and X "Glossary" are not considered part of the Title V permit renewal process, but changes may be made at the discretion of the District during the term of this permit.

Changes to the Permit, Title Page:

- The address for the Bay Area Air Quality Management District has changed.
- The permit engineer has changed to Loi Chau.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. This permit does not include Title IV or accidental release provisions.

Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

Changes to Permit, Section I:

- The District is updating the amended and approved dates for BAAQMD and SIP Regulation 2 Rule 1, BAAQMD and SIP Regulation 2 Rule 2, BAAQMD Regulation 2 Rule 4, BAAQMD Regulation 2 Rule 5, and BAAQMD and SIP Regulation 2 Rule 6. The District is correcting the bases of Standard Condition I.B.12, I.F, and I.G.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S-24). Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302. Each of the permitted sources has previously been issued a permit to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in

the permitted sources table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403. The permitted sources are listed in Table II-A.

Significant sources are those sources that have a potential to emit of more than 2 tons per year of a "regulated air pollutant" (as defined in BAAQMD Rule 2-6-222) or 400 pounds per year of a "hazardous air pollutant" (as defined in BAAQMD Rule 2-6-210). No significant sources have been reported at this facility.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device whose primary function is to reduce emissions is identified by an A and a number (e.g., A-24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will be listed in the abatement device table but will have an "S" number. An abatement device may also be a source (such as a thermal oxidizer that burns fuel) of secondary emissions. If the primary function of a device is to control emissions, it is considered an abatement (or "A") device. If the primary function of a device is a non-control function, the device is considered to be a source (or "S").

The District included an exempt equipment list to this section to clarify the status of various sources and operations. Table II-C identifies any equipment or operations that are located at this facility, but which are exempt from Title V permitting requirements. Typically, this table will include equipment or operations that are exempt from the District requirement to have a permit to operate pursuant to BAAQMD Regulation 2, Rule 1, Sections 103, 105, or 113-128 and that are not significant sources. However, it may also include equipment or operations that are required to have a District permit to operate, but are exempt from BAAQMD Regulation 2, Rule 6, Major Facility Review pursuant to Regulation 2, Rule 6, Sections 110-114. The applicable exemption will be identified in Table II-C. Although equipment listed in Table II-C is not required to be identified in the Title V permit, this exempt equipment must still comply with any applicable District, state, or federal regulations.

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit.

Following are explanations of the differences in the equipment list between the previous Title V permit renewal period (June 2012) and the permit proposal date: In Table II-A, S-14 and S-15 were added pursuant to Application #27950. In Table II-B, A-14 and A-15 were added pursuant to Application #27950. In Table II-C, exempt engines were added pursuant to Application #27950.

Changes to Permit, Section II:

- In Table II-A, S-1 Vasco Road Landfill – Waste Decomposition Process with Main Gas Collection System and Intermittent GCS is updated to reflect the changes to the gas collection system.

- In Table II-A, S-14 Green Waste Processing Operations and S-15 Wood Waste Processing Operations are added to the Title V permit pursuit to NSR Application #20685 and Title V Application #27950.
- In Table II-B, the A-14 Water Spray System and the A-15 Water Spray System were added to abate emissions from S-14 and S-15, respectively.

  In Table III-C, the diesel engines for the grinders at S-14 and S-15 are added to the list of exempt sources. The engines are registered under PERP, which are exempt from District permitting per Regulation 2-1-105.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility, including insignificant sources and portable equipment that may not require a District permit. If a generally applicable requirement applies specifically to a source that is permitted or significant, the standard will also appear in Section IV and the monitoring for that requirement will appear in Sections IV and VII of the permit. Parts of this section apply to all facilities (e.g., particulate, architectural coating, odorous substance, and sandblasting standards). In addition, standards that apply to insignificant or unpermitted sources at a facility (e.g., refrigeration units that use more than 50 pounds of an ozone-depleting compound) are placed in this section.

Unpermitted sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered "significant sources" as defined in BAAQMD Rule 2-6-239. This facility operates two grinders for S-14 and S-15 that are exempt under Regulation 2-1-105.

<u>Changes to Permit, Section III:</u>

- Editorial corrections were made to the table in this section.
- Updated the EPA's website address for the SIP standards to Section III.
- For Table III, the District is amending dates of adoption or approval of the rules, correcting the "federal enforceability" status for these rules and adding or deleting rules and standards to conform to current practice. The rules that are being amended, added or removed are listed below:
  - BAAQMD and SIP Regulation 2, Rule 1, Permits – General Requirements
  - BAAQMD Regulation 2, Rule 5, Permits – New Source Review of Toxic Air Contaminants
  - BAAQMD Regulation 6, Rule 1, Particulate Matter – General Requirements
  - BAAQMD Regulation 6, Rule 6, Particulate Matter – Prohibition of Trackout
  - BAAQMD Regulation 11, Rule 18, Hazardous Pollutants – Reduction of Risk from Air Toxic Emissions at Existing Facilities

    BAAQMD Regulation 14, Rule 1, Mobile Source Emissions Reduction Methods – Bay Area Commuter Benefits Program

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) are listed following the corresponding District rules. SIP rules are District rules that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are "federally enforceable" and a "Y" (yes) indication will appear in the "Federally Enforceable" column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the "Federally Enforceable" column will have a "Y" for "yes". If the SIP rule is not the current District rule, the SIP rule or the necessary portion of the SIP rule is cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- California requirements (such as ATCMs)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District or EPA websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

<u>EG and District Regulations for Vasco Road Landfill</u>

Landfills and landfill gas combustion equipment are subject to BAAQMD Regulation 8, Rule 34. This regulation requires landfills that have more than 1 million tons of refuse in place to collect and control the landfill gas that is generated by waste decomposition and specifies numerous operating, monitoring, and reporting requirements for subject operations. Regulation 8, Rule 34 has required that Vasco Road Landfill be controlled by an active landfill gas collection system and landfill gas control system since 1987.

Landfills and landfill gas combustion equipment may also be subject to either the federal New Source Performance Standards (NSPS) for Municipal Solid Waste (MSW) Landfills or the Emission Guidelines (EG) for MSW Landfills. The federal NSPS for MSW Landfills (40 CFR Part 60, Subpart WWW) applies to landfills that have had a design capacity modification after May 30, 1991. The EG for MSW Landfills (40 CFR Part 60, Subpart Cc) applies to landfills that

have had no design capacity modification since May 30, 1991 but that have accepted waste since November 8, 1987. The Vasco Road Landfill has had no design capacity modifications since May 30, 1991, but it has accepted waste after November 8, 1987. Therefore, the EG is applicable to this disposal facility.

Regulation Applicability for the S-9 Portable Diesel Engine

As discussed in the equipment section, the District has determined that the S-9 Portable Diesel Engine is a nonroad engine because it does not remain at any single location within this facility for more than 12 consecutive months. Since S-9 is a nonroad engine, it is exempt from major facility review pursuant to Regulation 2-6-114. Therefore, the District is proposing to remove Tables IV-F and VII-F and Condition #20511 for S-9 from this draft renewal permit. However, since S-9 will remain a District permitted source at this facility, S-9 must continue to comply with all applicable requirements. For clarity, the applicable requirements for S-9 are identified below, even though these requirements will not be specifically identified in the MFR permit for this site.

BAAQMD Regulation 6, Rule 1 and SIP Regulation 6 apply to all combustion devices. Since S-9 has a displacement of less than 1500 in^3, it is subject to the Ringelmann 2.0 limitation in BAAQMD Regulation 6-1-303 and SIP Regulation 6-303 pursuant to BAAQMD 6-1-303.1 and SIP 6-303.1, respectively. This diesel engine is also subject to the prohibition on emitting visible particles (BAAQMD 6-1-305 and SIP 6-305), the total suspended particulate concentrations limits (BAAQMD 6-1-310 and SIP 6-310), and the requirement to know the appearance of emissions from this source (BAAQMD 6-1-401 and SIP 6-401).

Diesel engines emit sulfur dioxide are subject to the fence-line ground level sulfur dioxide emission limitation and the liquid fuel sulfur content limit in BAAQMD and SIP Regulations 9-1-301 and 9-1-304.

The NSPS for Compression Ignition Internal Combustion Engines (40 CFR Part 60, Subpart IIII) is potentially applicable to any stationary compression ignition engines at a site. The S-9 Portable Diesel Engine is a compression-ignition (CI) internal combustion (IC) engines. However, portable engines are usually considered to be nonroad engines and would not typically be defined as stationary engines under this subpart. Portable engines that remain at a location for longer than 12 consecutive months are no longer considered to be nonroad engines (per 40 CFR Part 1068.30, paragraph (2)(iii) of the nonroad definition). In this case, a location is defined as "any single site at a building, structure, facility, or installation." S-9 is moved around to different locations within this facility and does not reside at any single location for more than 12 consecutive months. Therefore, S-9 will continue to be considered a nonroad engines for the purposes of federal NSPS and NESHAP requirements.

Pursuant to 40 CFR, Part 60.4200(a)(2), subpart IIII applies to owners or operations of stationary compression-ignition IC engines that commence construction after July 11, 2005. Since S-9 is a

nonroad engines, this engine is not a stationary engine (pursuant to the definition of stationary internal combustion engine in 40 CFR Part 60.4219) and is not subject to Subpart IIII.

The NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ) applies to reciprocating IC engines (RICE) located at major and area sources of HAP. As discussed above for Subpart IIII, S-9 is a nonroad engine, because it is a portable engine that does not reside at a single on-site location for more than 12 consecutive months. Therefore, S-9 is not a stationary RICE pursuant to the definition on stationary RICE in 40 CFR Part 63.6675, and Subpart ZZZZ does not apply to S-9.

Portable compression ignition engines are subject to the California Airborne Toxic Control Measure (ATCM) for Diesel Particulate Matter from Portable Engines rated at 50 Horsepower and Greater (California Health and Safety Code, Title 17, Section 93116). S-9 is subject to this non-federally enforceable ATCM. This ATCM requires S-9 to use CARB certified diesel fuel, to be a CARB certified engine, sets fleet average diesel PM emission limits, and imposes record keeping and reporting requirements. The following subparts of Section 93116 apply to S-9: 93116.1, 93116.1(a), 93116.3, 93116.3(a, b, b(2), c, c(1), and d), 93116.4, 93116.4(e, e(1), e(2)), and 93116.5.

Applicability of 40 CFR Part 64, Compliance Assurance Monitoring (CAM)

Sources at Title V facilities may be subject to the Compliance Assurance Monitoring (CAM) requirements in 40 CFR, Part 64. The District has reviewed applicability of the Compliance Assurance Monitoring (CAM) requirements in 40 CFR, Part 64, for this facility. Three criteria specified in 40 CFR Part 64.2(a)(1-3) must be met for CAM to apply:

- The source must be subject to a federally enforceable emission limit for a regulated air pollutant, other than an exempt limitation.
- The source must use a control device to achieve compliance with the emission limitation.
- The pre-controlled emissions of the specific pollutant being controlled must be greater than the major facility emissions threshold for that pollutant.

Vasco Road Landfill with Gas Collection System (S-1); abated by Landfill Gas Flare (A-4):

At this facility, the landfill waste decomposition process and its related emission control device (S-1 and A-4) are exempt from the first CAM applicability criteria, 40 CFR Part 64.2(a)(1), pursuant to 40 CFR Part 64.2 (b)(1)(i), because the landfill and landfill gas control and landfill gas control systems are subject to the EG and NESHAP requirements identified above, and these EG and NESHAP requirements were adopted pursuant to Section 111 and 112 of the Clean Air Act after November 15, 1990. Since the applicable federal requirements contain adequate monitoring provisions, additional compliance assurance monitoring is not necessary. Since the landfill and its related control devices do not satisfy all three CAM applicability criteria, CAM does not apply to S-1 and A-4.

Although the Non-Retail Gasoline Dispensing Facility (S-7) does employ control measures that reduce organic compound emissions compared to uncontrolled fuel dispensing operations, the

Phase I and Phase II vapor balance systems, pressure relief valves, and other leak prevention measures used at S-7 are inherent parts of the system design that are intended to prevent organic compounds from being emitted into the atmosphere rather than to remove or destroy organic compounds from an exhaust stream. These types of inherent process equipment and passive control measures are not considered to be control devices under the control device definition in 40 CFR Part 64.1. In addition, the uncontrolled POC emissions from S-7 are less than the major facility emissions threshold (100 tons/year). Since S-7 does not meet either the second or the third CAM applicability criteria – 40 CFR Part 64.2(a)(2 or 3), S-7 is not subject to CAM.

The green waste and wood waste processing operations (S-14 and S-15) generates particulate emissions from grinding operations. The facility uses water sprayers (A-14 and A-15) as control devices to reduce particulate emissions. Although the facility is subject to federally enforceable limits and uses a control device to meet emission limitations, the uncontrolled particulate emissions from S-14 and S-15 are less than the major facility emissions threshold. S-7 does not meet the third Cam applicability criteria and is not subject to CAM.

Change to Permit, Section IV:

- In Table IV-A, the most recent amendment to Regulation 6, Rule 1 are updated in the table. BAAQMD Regulation 6, Rule 6 and 40 CFR 60, Subpart Cf are applied to Source S-1.
- Table IV-C is added to account for S-14 and A-14.
- Table IV-D is added to account for S-15 and A-15.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

"409.10 A schedule of compliance containing the following elements:

10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;

10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and

10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted."

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 and 2-6-409.10.2.

The BAAQMD Compliance and Enforcement Division is conducting a review of compliance for the period from 2/5/2004 to 12/13/2011, and notes that Republic Services, was in intermittent compliance. There was no evidence of ongoing noncompliance and no recurring pattern of violations that would warrant consideration of a Title V permit compliance schedule for this facility. The compliance report will be added to Appendix A of this permit evaluation and statement of basis.

Changes to Permit, Section V:

- The District is not proposing any changes to this section.

VI. Permit Conditions

Each permit condition is identified with a unique numerical identifier, up to five digits. The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an administrative revision initiated by District staff. After issuance of the Title V permit, permit conditions will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2, Rule 2, Section 301.
- Cumulative Increase: This term is used for a condition imposed by the APCO that limits a source's operation to the operation described in the permit application pursuant to BAAQMD Regulation 2, Rule 1, Section 403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for condition imposed by the APCO to ensure compliance with limits that arise from the District's Toxic Risk Management Policy. This policy was replaced by Regulation 2, Rule 5 in 2005.

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and, as appropriate, revised the conditions for clarity and enforceability. When necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting requirements have been added to the permit.

Since the last revision of the Title V permit, this site has incorporated Condition #25515 for S-14 and A-14; Condition #25516 for S-15 and A-15, and revised Condition #818 for modifications to the landfill gas collection system. Condition #25515 and #25516 were pursuant to Application #20685 for green waste and wood waste processing operations. In NSR Application #29010, Republic Services requested a revision to the number of alterations allowed for landfill gas operations. The revision to Condition #818 permitted the facility to perform the following alterations to the facility: install up to 100 vertical wells, install up to 20 horizontal collectors, decommission up to 150 vertical wells, and decommission up to 15 horizontal collectors. The proposed changes to each part of Condition #818, #25515 and #25516 are explained in more detail below.

Changes to Permit, Section VI:

- Condition # 818, Title: An editorial change was made to the title of the permit conditions.
- Condition # 818, Part 2: The number of vertical wells and horizontal collectors at the facility is updated to reflect current operating conditions for the landfill gas collection system. 2 horizontal collectors, VR12GT4R and VR12GT05, is added as wells for the intermittent gas collection system pursuant to NSR Application #2140. The number of alterations permitted at the landfill gas collection system were increased pursuant to NSR Application #29010. Part c(vi) is added require the facility to apply for a petition for less than continuous operation every 3 years.
- Condition # 818, Part 3: The wells permitted to operate at higher operating values is updated to reflect the wells that are part of the active landfill gas collection system or the intermittent gas collection system.
- Condition # 25515: The District added the permit conditions to associated with S-14 Green Waste Processing Operations and A-14 Water Spray System.
- Condition # 25516: The District added the permit conditions to associated with S-15 Wood Waste Processing Operations and A-15 Water Spray System.

All changes to existing permit conditions are clearly shown in "strike-out/underline" format in the proposed permit. When the permit is issued, all "strike-out" language will be deleted and all "underline" language will be retained, subject to consideration of comments received.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely

contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) whether there is some other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements**.** It follows that, although Title V calls for a re-examination of all monitoring**,** there is a presumption that these factors have been appropriately balanced and incorporated in the District's prior rule development and/or permit issuance. It is possible that, where a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation**.** Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the nature or frequency of monitoring requirements only when it can support a conclusion that existing monitoring is inadequate**.**

The tables below contain only the federally enforceable limits for which there is no monitoring or inadequate monitoring in the applicable requirements. The District has examined the monitoring for all other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

SO_2 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-4 Landfill Gas Flare	BAAQMD 9-1-301	Property Line Ground Level SO_2 Limits: $\leq$ 0.5 ppm for 3 minutes and $\leq$ 0.25 ppm for 60 min. and $\leq$ 0.05 ppm for 24 hours	None

SO_2 Discussion:

Potential to Emit Calculations for A-4 Landfill Gas Flare:

For SO_2 calculations, the landfill gas is assumed to contain 50% methane and to have a high heating value of 496 BTU/ft^3 at 70 °F. For landfill gas containing 50% methane, the theoretical flue gas production rate is estimated to be 4.7847 standard dry cubic feet (sdcf) of flue gas (at 0% excess oxygen) per sdcf of landfill gas. The A-4 flare is assumed to operate continuously at maximum capacity of 120 MM BTU/hour.

(1,051,200 MM BTU/year)*(1.0E6 BTU/1 MM BTU)/(496 BTU/ft^3 LFG)*(320 ft^3 H_2S/1.0E6 ft^3 LFG)/(386 ft^3 H_2S/lbmol H_2S)*(1 lbmol SO_2/1 lbmol H_2S)*(64.06 pounds SO_2/lbmol SO_2)/(2000 pounds SO_2/ton SO_2) = 56.3 tons SO_2/year

Maximum SO_2 Concentration in Flare Exhaust:

(320 ft^3 H_2S/1.0E6 ft^3 LFG)*(1 ft^3 SO_2/1 ft^3 H_2S)/(4.7847 ft^3 flue gas at 0% O_2/1.0 ft^3 LFG) = 7.69E-5 ft^3 SO_2/ft^3 flue gas at 0% O_2 = 67 ppmv of SO_2 in flue gas from A-4

Definitions of the terms used above are contained in the glossary.

BAAQMD Regulation 9-1-301: This facility will be subject to federally enforceable limits, which will ensure compliance with the BAAQMD Regulation 9-1-302 gas stream emission limit of 300 ppmv of SO_2 in the flare exhaust. As shown above, the TRS limit in Part 12 will result in a maximum concentration of 67 ppmv of SO_2 in the flare exhaust, which is less than one quarter of the 9-1-302 limit. Based on air dispersion modeling analyses conducted at other landfill sites, the District has found that sources that are complying with the BAAQMD Regulation 9-1-302 limit are unlikely to result in an excess of the ground level concentration limits listed in BAAQMD Regulation 9-1-301. Monitoring for ground level SO_2 concentrations in addition to the proposed continuous landfill gas flow rate monitoring, annual landfill gas TRS content monitoring, and record keeping requirements would not be appropriate, because the likelihood of non-compliance with the ground level SO_2 emission limits is extremely low.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-4 Landfill Gas Flare	BAAQMD 6-1-301 and SIP 6-301	Ringelmann 1.0	None
A-4 Landfill Gas Flare	BAAQMD 6-1-310 and SIP 6-310	$\leq$ 0.15 grains/dscf	None

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-14 Green Waste Processing Operations	BAAQMD 6-1-311 and SIP 6-311	$E = 4.10(P)^{0.67}$ where: E = Allowable Emission Rate (lb/hr); and P = Process Weight Rate (lb/hr) Maximum Allowable Emission Rate = 40 lb/hr For P >55,116 lb/hr	None
S-15 Wood Waste Processing Operations	BAAQMD 6-1-311 and SIP 6-311	$E = 4.10(P)^{0.67}$ where: E = Allowable Emission Rate (lb/hr); and P = Process Weight Rate (lb/hr) Maximum Allowable Emission Rate = 40 lb/hr For P >55,116 lb/hr	None

PM Discussion:

Potential to Emit Calculations for A-4 Landfill Gas Flare:

The maximum potential PM_{10} emissions from A-4 are based on the maximum permitted PM_{10} emission rate for A-4 (0.022 lbs/MM BTU) and continuous operation of A-4. For comparison, the AP-42 emission factor for landfill gas fired flares: 17 pounds of PM_{10} per million dry standard cubic feet (dscf) of methane (CH_4) is equivalent to 0.017 lbs/MM BTU for landfill gas containing 50% methane (HHV = 496 BTU/scf).

(1,051,200 MM BTU/year)*(0.022 lbs PM_{10}/MM BTU)/(2000 pounds PM_{10}/ton PM_{10})
= 11.6 tons PM_{10}/year

Maximum Grain Loading in Flare Exhaust:

(0.022 lbs PM_{10}/1E6 BTU)*(496 BTU/1.0 ft^3 LFG)/(4.7847 ft^3 flue gas at 0% O_2/1.0 ft^3 LFG)*

(7000 grains PM_{10}/1.0 lbs PM_{10}) = 0.016 grains/dscf of flue gas at 0% O_2

BAAQMD Regulation 6-1-301 and SIP 6-301 for A-4 Landfill Gas Flare: Visible particulate emissions are normally not associated with combustion of gaseous fuels, such as natural gas or landfill gas. Since maximum potential particulate emissions are not substantial and violations of Ringelmann 1.0 limit are not expected, periodic monitoring for the Ringelmann limit would not be appropriate for this flare.

BAAQMD Regulation 6-1-310 and SIP 6-310 for A-4 Landfill Gas Flare: Regulation 6-1-310 limits total suspended particulate (TSP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. As shown above, A-4 will have a maximum particulate grain loading rate of 0.016 grains/dscf (at 0% excess oxygen). The outlet grain loading rate from A-4 will be less than 0.01 gr/sdcf under typical actual combustion conditions.

The grain loading limit of 0.15 gr/dscf is far above the maximum expected grain loading rate of 0.016 gr/sdcf with a compliance margin (limit/emissions) of more than 9:1. Since particulate emissions testing is costly (compared to testing costs for other criteria pollutants), the likelihood of non-compliance with the Regulation 6-1-310 limit is very low, and PM_{10} emissions from A-4 are not substantial, it would not be appropriate to add periodic monitoring for the Regulation 6-1-310 standard.

Potential to Emit Calculations for S-14 Green Waste Operations and S-15 Wood Waste Operations:

Particulate emission for grinding operations were calculated for S-14 and S-15. Since particulate emission factors are not available for grinding operations, the emission factors for log debarking operations from a previous version of AP-42 Table 10.3-1 were used for the emission calculations. Based on a maximum hourly throughput of 75 tons per hour and an abatement efficiency of 50% from the water sprayer, the following calculations were used to determine the hourly emissions:

PM_{10} [lb/hour] = Throughput [lb/hour] * 0.024 lb TSP/ton * 0.60 lb PM_{10}/lb TSP * 0.50
= (75 tons/hour) * (0.024 lb TSP/ton) * (0.60 lb PM_{10}/lb TSP) * 0.50
= 0.54 lb PM_{10} per hour of operation

BAAQMD Regulation 6-1-311: Based on Table 1 of Regulation 6-1-311, the maximum allowable emission rate is 40 lb/hour. Based on the operation of 75 tons of either wood waste or green waste per hour, the calculated maximum hourly emission is 0.54 pounds per hour. The operations from S-14 and S-15 will operate below the maximum allowable emission rates.

<u>Changes to Permit, Section VII:</u>

- In Table VI-A, editorial changes were made to reflect the amendments to BAAQMD Regulation 6, Rule 1. Monitoring requirements for BAAQMD Regulation 6, Rule 6 is added for S-1.
- Table VII-C is added for S-14 and A-14.
- Table VII-D is added for S-15 and A-15

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not "applicable requirements" as defined by Regulation 2-6-202.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section IV of the permit.

Changes to the Permit, Section VIII:

- Updated description of requirements for Regulation 6-1-310

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's "White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program." The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has no permit shields. This permit has no streamlining.

Changes to Permit, Section IX:

- The District is not proposing any changes to this section.

X. Revision History

This section of the permit summarizes each revision to the permit.

Changes to the Permit, Section X:

- The District added descriptions of the permit revisions associated with this MFR Renewal Permit (Application # 28411) and Minor Revisions (Application #27950 and #29141) to Section X.

XI. Glossary

This section of the permit defines and explains acronyms, abbreviations, and other terms that are used in this permit.

Changes to the Permit, Section XI:

- The District is not proposing any changes to this section.

XII. Applicable State Implementation Plan

Changes to the Permit, Section XII:

- The District is not proposing any changes to this section.

D. ALTERNATE OPERATING SCENARIOS

No alternate operating scenarios were requested for this facility.

E. COMPLIANCE STATUS

The responsible official for Republic Services submitted a signed Certification Statement form dated December, 31, 2017. On this form, the responsible official certified that the following four statements are true:

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form that are in compliance will continue to comply with the applicable requirements;

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form will comply with future-effective applicable requirements, on a timely basis;

Based on information and belief formed after reasonable inquiry, information on application forms, all accompanying reports, and other required certifications is true, accurate, and complete;

All fees required by Regulation 3, including Schedule P have been paid.

F. DIFFERENCES BETWEEN THE APPLICATION AND THE PROPOSED PERMIT

The previous renewal Title V permit for this facility was issued on June 4, 2012 (Application # 1862). The District issued a Minor Revision on January 27, 2015 (Application #25908). The January 27, 2015 version of the Title V permit for Site # A5095 is the basis for constructing the proposed Title V renewal permit.

The Title V permit application for renewal (Application #28411) was originally submitted on December 2, 2016. In various applications since the previous permit renewal, Republic Services requested the following changes to the Title V permit for this site:

- In NSR Application #20685 and Title V Minor Revision #27950, Republic Services has requested S-14 and S-15 be included in the Title V renewal permit. S-14 corresponds to the green waste processing operations and S-15 corresponds to the wood waste processing operations at the site.
- Republic Services requested a change to Condition #818, Part 2b to modify the number of alterations permitted to the landfill gas collection system (Application #29010).
-

As indicated above, the January 27, 2015 version of the Title V permit for Site # A5095 was used as the basis for constructing the proposed Title V renewal permit. The District reviewed the applicant's requested changes above (Application #28411) and has made the following changes to the proposed permit in response to these requests.

- The District added the following new equipment to the proposed renewal permit: S-14 and S-15.
- The District has changed the number of alterations permitted for the landfill gas collection system to allow to install 100 vertical wells, install 20 horizontal collectors, decommission 150 vertical well, and decommission 15 horizontal well.

The District has made additional changes to the proposed Title V renewal permit that were not identified in the permit holder's application materials. These additional changes are summarized briefly below:

- The District updated the standard language sections in the permit.
- The District has corrected addresses, emails, and typographical errors in the permit.
- The District updated regulatory amendment dates throughout the permit.

- The District added new applicable requirements and limits, removed obsolete requirements and limits, and updated or clarified existing requirements and limits throughout the permit.
- All of the permit revisions were identified in the Section X Revision History.

H:\Engineering\TITLE V Permit Appls\1 ALL T5 Application Files here\A1179\Renew - 28281\2.0 Draft Docs\A5095_06_2018_renewal_draft_SOB_28411.doc

APPENDIX A:

GLOSSARY

ACT
Federal Clean Air Act

AP-42
An EPA Document "Compilation of Air Pollution Emission Factors" that is used to estimate emissions from numerous source types. It is available electronically from EPA's web site at: http://www.epa.gov/ttn/chief/ap42/index.html

APCO
Air Pollution Control Officer: Head of Bay Area Air Quality Management District

ARB
Air Resources Board (same as CARB)

ASTM
American Society for Testing and Materials

ATC
Authority to Construct

ATCM
Airborne Toxic Control Measure

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

BARCT
Best Available Retrofit Control Technology

Basis
The underlying authority that allows the District to impose requirements.

C1
An organic chemical compound with one carbon atom, for example: methane

C3
An organic chemical compound with three carbon atoms, for example: propane

C5
An organic chemical compound with five carbon atoms, for example: pentane

C6
An organic chemical compound with six carbon atoms, for example: hexane

C_6H_6
Benzene

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CAPCOA
California Air Pollution Control Officers Association

CARB
California Air Resources Board (same as ARB)

CCR
California Code of Regulations

CEC
California Energy Commission

CEQA
California Environmental Quality Act

CEM
A "continuous emission monitor" is a monitoring device that provides a continuous direct measurement of some pollutant (e.g. NOx concentration) in an exhaust stream.

CFR
The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CH4 or CH_4
Methane

CI
Compression Ignition

CIWMB
California Integrated Waste Management Board

CO
Carbon Monoxide

CO2
Carbon Dioxide

CO2e
Carbon Dioxide Equivalent. A carbon dioxide equivalent emission rate is the emission rate of a greenhouse gas compound that has been adjusted by multiplying the mass emission rate by the global warming potential of the greenhouse gas compound. These adjusted emission rates for individual compounds are typically summed together, and the total is also referred to as the carbon dioxide equivalent (CO2e) emission rate.

CT
Combustion Zone Temperature

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Used to determine whether threshold-based requirements are triggered.

District
The Bay Area Air Quality Management District

E6, E9, E12
Very large or very small number values are commonly expressed in a form called scientific notation, which consists of a decimal part multiplied by 10 raised to some power. For example, 4.53E6 equals (4.53) x (106) = (4.53) x (10x10x10x10x10x10) = 4,530,000. Scientific notation is used to express large or small numbers without writing out long strings of zeros.

EG
Emission Guidelines

EO
Executive Order

EPA
The federal Environmental Protection Agency.

Excluded
Not subject to any District regulations.

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP
Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

FR
Federal Register

GDF
Gasoline Dispensing Facility

GHG
Greenhouse Gas

GLM
Ground Level Monitor

Grains
1/7000 of a pound

GWP
Global Warming Potential. A comparison of the ability of each greenhouse gas to trap heat in the atmosphere relative to that of carbon dioxide over a specific time period.

H2S or H_2S
Hydrogen Sulfide

H2SO4 or H_2SO_4
Sulfuric Acid

H&SC
Health and Safety Code

HAP
Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

Hg
Mercury

HHV
Higher Heating Value. The quantity of heat evolved as determined by a calorimeter where the combustion products are cooled to 60F and all water vapor is condensed to liquid.

LEA
Local Enforcement Agency

LFG
Landfill gas

LHV
Lower Heating Value. Similar to the higher heating value (see HHV) except that the water produced by the combustion is not condensed but retained as vapor at 60^{o}F.

Long ton
2200 pounds

Major Facility
A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MAX or Max.
Maximum

MFR
Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6.

MIN or Min.
Minimum

MOP
The District's Manual of Procedures.

MSDS
Material Safety Data Sheet

MSW
Municipal solid waste

MW
Molecular weight

N2
Nitrogen

NA
Not Applicable

NAAQS
National Ambient Air Quality Standards

NESHAPS
National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NMHC
Non-methane Hydrocarbons (Same as NMOC)

NMOC
Non-methane Organic Compounds (Same as NMHC)

NOx or NO_x
Oxides of nitrogen.

NO2 or NO_2
Nitrogen Dioxide.

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

O2 or O_2
Oxygen

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NOx, PM10, and SO2.

PERP
Portable Equipment Registration Program

Phase II Acid Rain Facility
A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC
Precursor Organic Compounds

PM
Particulate Matter

PM10 or PM_{10}
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PSD
Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

PV or P/V Valve or PRV
Pressure/Vacuum Relief Valve

RICE
Reciprocating Internal Combustion Engine

RMP
Risk Management Plan

RWQCB
Regional Water Quality Control Board

S
Sulfur

SCR
A "selective catalytic reduction" unit is an abatement device that reduces NOx concentrations in the exhaust stream of a combustion device. SCRs utilize a catalyst, which operates within a specific temperature range, and injected ammonia to promote the conversion of NOx compounds to nitrogen gas.

Short ton
2000 pounds

SIP
State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO2 or SO_2
Sulfur dioxide

SO3 or SO_3
Sulfur trioxide

SSM
Startup, Shutdown, or Malfunction

SSM Plan
A plan, which states the procedures that will be followed during a startup, shutdown, or malfunction, that is prepared in accordance with the general NESHAP provisions (40 CFR Part 63, Subpart A) and maintained on site at the facility.

TAC
Toxic Air Contaminant (as identified by CARB)

TBACT
Best Available Control Technology for Toxics

THC
Total Hydrocarbons (NMHC + Methane)

therm
100,000 British Thermal Units

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC
Total Organic Compounds (NMOC + Methane, Same as THC)

TPH
Total Petroleum Hydrocarbons

TRMP
Toxic Risk Management Policy

TRS
Total Reduced Sulfur, which is a measure of the amount of sulfur-containing compounds in a gas stream, typically a fuel gas stream, including, but not limited to, hydrogen sulfide. The TRS content of a fuel gas determines the concentration of SO_2 that will be present in the combusted fuel gas, since sulfur compounds are converted to SO_2 by the combustion process.

TSP
Total Suspended Particulate

TVP
True Vapor Pressure

VOC
Volatile Organic Compounds

Symbols:

<	=	less than
>	=	greater than
$\leq$	=	less than or equal to
$\geq$	=	greater than or equal to

Units of Measure:

atm	=	atmospheres
bbl	=	barrel of liquid (42 gallons)
bhp	=	brake-horsepower
btu	=	British Thermal Unit
BTU	=	British Thermal Unit
°C	=	degrees Centigrade
cfm	=	cubic feet per minute
dscf	=	dry standard cubic feet
°F	=	degrees Fahrenheit
ft^3	=	cubic feet
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
gr	=	grains
hp	=	horsepower
hr	=	hour
in	=	inches
kW	=	kilowatts
lb	=	pound
lbmol	=	pound-mole
m^2	=	square meter
m^3	=	cubic meters
min	=	minute
mm	=	millimeter
MM	=	million
MM BTU	=	million BTU
MMcf	=	million cubic feet
Mg	=	mega grams
M scf	=	one thousand standard cubic feet
MW	=	megawatts
ppb	=	parts per billion
ppbv	=	parts per billion, by volume
ppm	=	parts per million
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scf	=	standard cubic feet
scfm	=	standard cubic feet per minute
sdcf	=	standard dry cubic feet
sdcfm	=	standard dry cubic feet per minute
yd	=	yard
yd^3	=	cubic yards
yr	=	year

APPENDIX B:

NSR PERMIT EVALUATION

FOR APPLICATION # 20685

Engineering Evaluation Report

Republic Services Vasco Road, LLC
Plant No: 5095; Application No: 20685

4001 N Vasco Road
Livermore, CA 94550

Background

Cornerstone Environmental Group, LLC on behalf of Republic Services Vasco Road, LLC has applied for a permit to operate for green waste and wood waste grinding operations at Vasco Road Landfill, located at 4001 N Vasco Road in Livermore.

S-14 Portable Green Waste Processing Operation
S-15 Portable Wood Waste Processing Operation

Grinding operations are performed by a third party contractor (Bay Valley/ Fahy). The grinding operations will take place around the permitted landfill footprint and will move locations base on where waste is accepted. The frequencies of the grinding operations depend on seasonal weather conditions.

The applicant has proposed the maximum acceptance of green waste will be approximately 1,300 tons per month and a maximum annual throughput limit of 16,000 tons per year. The proposed maximum acceptance of wood waste will be 105 tons per month and a maximum annual throughput limit of 5,000 tons per year.

The grinders are powered by a diesel engine. The engine and the horizontal grinder are both registered under the state's portable equipment registration program (PERP). The PERP registration number for the engine is 125494 and the CARB tracking number is 20051708. The PERP registration number for the horizontal grinder is 125495 and the CARB tracking number is 20051709. The expiration date for both the engine and horizontal grinder is May 31, 2014.

Note that the District is currently working with several other air Districts in California to define a permitting policy to clarify under what circumstances portable equipment registered under PERP becomes subject to District stationary source permit requirements. As this policy is not yet final, this application will evaluate only the grinding operations.

Emission Calculations

Particulate emissions will be generated from the grinding operations. To approximate the particulate emissions (PM10) for wood grinding, the emission factor for "Log Debarking" from a previous edition of AP-42, Table 10.3-1 of [0.024 lb Total Suspended Particulate (TSP) / ton] will be used with the throughput quantity of wood processed. Approximately 60% of the particulate emissions are assumed to be PM10. Water suppression will also provide 50% abatement of particulate emission.

S-14 Portable Green Waste Grinding Operation
The applicant proposed the annual limit of 16,000 tons per year of green waste.

PM10 [lb/year] = Throughput [tons/year] x 0.024 lb TSP/ton x 0.60 lb PM10/lb TSP) x 0.50
= (16,000 tons/year) x (0.024 TSP/ton) x (0.60 lb PM10/ lb TSP) x 0.50
=115.2 lb/year = 0.058 tons/year

S-15 Portable Wood Waste Grinding Operation
The applicant proposed the annual limit of 5,000 tons per year of wood waste.

PM10 [lb/year] = Throughput [tons/year] x 0.024 lb TSP/ton x 0.60 lb PM10/lb TSP) x 0.50
= (5,000 tons/year) x (0.024 TSP/ton) x (0.60 lb PM10/ lb TSP) x 0.50
= 36 lb/year = 0.018 tons/year

Daily maximum PM10 emissions were based on maximum operating rates for S-14 and S-15:
Maximum operating rates: 75 tons per hour and 8 hours per day (provided by the applicant):

PM10 [lb/day] = Throughput [lb/day] x 0.024 lb TSP/ton x 0.60 lb PM10/lb TSP) x 0.50
= (600 tons/day) x (0.024 TSP/ton) x (0.60 lb PM10/ lb TSP) x 0.50 = 4.3 lb/day

Proposed PM10 emissions from S-14 and S-15

	Maximum Daily Emission [lbs/day]	Annual Emissions [lbs/year]	Annual Emissions [tons/year]
S-14	4.3	115.2	0.058
S-15	4.3	36	0.018
Total	**0.414**	**151.2**	**0.076**

Cumulative Emission Increase for PM10 Since 4/5/91

Existing PM10 Emissions [tpy]	Increase PM10 Emissions [tpy]	New PM10 Emissions [tpy]
6.84	0.076	6.916

Since the District policy regarding permitting of PERP-registered equipment operated at facilities within the District is currently under development, the emissions from the diesel engine used to power the grinding equipment will not be considered under this application. If the District permit is required of the PERP equipment, the emissions will be assessed at that time under a separate application.

California Environmental Quality Act (CEQA)
District Regulation 2-1-310 specifies that all proposed new and modified sources subject to District permit requirements must be reviewed in accordance with CEQA requirements except for ministerial projects exempt from CEQA under 2-1-311. The proposed project is considered to be ministerial and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 11.13 Tub grinders.

Best Available Control Technology (BACT)
The maximum daily PM10 emission from the grinding operations (S-14 and S-15) will be less than 10 pounds per day; therefor BACT review is not triggered.

Offsets
Since fugitive PM10 emissions are less than 100 tons per year, this facility is not major for PM10 and PM10 emission offsets are not required.

Toxics
A toxic risk screening analysis is not required because emission of Toxic Air Contaminants (TACs) do not exceed the toxic trigger levels in Regulation 2-5; Table 2-5-1.

Statement of Compliance
Based on the information submitted, these grinding operations are expected to be in compliance with Regulation 6 Particulate Matter, Rule 1 General Requirements.

This facility is not within 1000 feet of a public school; therefore it is not subject to reporting requirements of a Public Notice per Regulation 2-1-412.

RECOMMENDATION
It is recommended to waive the Authority to Construct and issue a Permit to Operate for:

S-14 Portable Green Waste Processing Operation; 600 tons/day
S-15 Portable Wood Waste Processing Operation; 600 tons/day

Permit Conditions for Green and Wood Waste Grinding operations:

Application No. 20685, Plant No.5095: Republic Services Vasco Road, LLC - Conditions for S-14:

COND# 25515

1. The owner/operator shall not process more than 16,000 tons of green waste in any consecutive 12-month period.
   [basis: Cumulative increase]

2. The owner/operator of S-14 Green Waste Grinder shall use A-14 Water Spray as necessary to prevent dust emissions from the grinder from violating any applicable provisions of District Regulation 6, Rule 1, Section 301.
   [basis: Cumulative Increase and Regulation 6-1]

3. To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions.
   a) Daily hours of operation.
   b) Hours of operation and amount of wood processed shall be totaled on a rolling consecutive 12-month basis.

   The owner/operator shall record all records in a District-approved log. The owner/operator shall retain the records with the equipment for two years, from the date of entry, and make them available for inspection by District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District Regulations.
   [basis: Cumulative Increase, Regulation 1-441]

Application No. 20685, Plant No.5095: Republic Services Vasco Road, LLC - Conditions for S-15:

COND# 25516

1. The owner/operator shall not process more than 5,000 tons of wood waste in any consecutive 12-month period.
   [basis: Cumulative increase]

2. The owner/operator of S-15 Wood Waste Grinder shall use A-15 Water Spray as necessary to prevent dust emissions from the grinder from violating any applicable provisions of District Regulation 6, Rule 1, Section 301.
   [basis: Cumulative Increase and Regulation 6-1]

3. To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions.
   a) Daily hours of operation.

b) Hours of operation and amount of wood processed shall be totaled on a rolling consecutive 12-month basis.

The owner/operator shall record all records in a District-approved log. The owner/operator shall retain the records with the equipment for two years, from the date of entry, and make them available for inspection by District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District Regulations. [basis: Cumulative Increase, Regulation 1-441]

_____ _____

Flora W. Chan Date
Air Quality Engineer II

APPENDIX C:

NSR PERMIT EVALUATION

FOR APPLICATION # 29010

ENGINEERING EVALUATION
for
Permit Condition Changes for the
Vasco Road Landfill, LLC; Plant: 5095

Application: 29010

BACKGROUND

The Applicant has applied for a Change of Condition for the following:

S-1 Landfill – Waste Decomposition Process

Site Description

Republic Services Vasco Road, LLC (Republic Services) Operates the Vasco Road Landfill Facility located in Livermore, CA. This facility includes an active landfill (S-1, S-12, and S-13, a landfill gas flare (A-4), a diesel fired waste tipper engine (S-9), a non-retail gasoline dispensing facility (S-7), and green waste processing operations (S-14, S-15, A-14, and A-15). As required by District, state, and federal regulations the active landfill is equipped with landfill gas collection and control systems to reduce the organic compound, toxic air contaminants, and greenhouse gas emissions from the landfill. Until recently, all collected landfill gas has been controlled by the on-site enclosed flare (A-4)

Ameresco Vasco Road, LLC (Plant #20432) constructed a landfill gas to energy plant at this Livermore, CA facility that will use landfill gas collected from the Vasco Road Landfill as fuel for two IC engines (S-1 and S-2). This energy plant also includes a Landfill Gas Treatment System (S-3), which removes siloxanes and other organic and sulfur contaminants from the landfill gas before it is burned in the engines, and a Waste Gas Flare (A-1), which controls waste gas emissions from desorption cycle included in S-3. This new energy plant began operation of all equipment in January 2014.

At full capacity, this energy plant can burn up to 1590 scfm of landfill gas at a heat content of 500BTU/scf or about 48 MM BTU/hour of heat input. This maximum capacity is about 90% of the current landfill gas collection rate (1755 scfm in 2013). As discussed in the Engineering Evaluation Report for Application # 25904, the District added permit conditions to ensure that venting gas to this energy plant would not result in an overall decrease in the landfill gas collection rate for this landfill that might lead to excess landfill surface emissions.

Current Project

On November 21, 2017, Republic Services submitted Application #29010 to request an Authority to Construct and Permit to Operate for the landfill gas collection system to ensure the active landfill complies with Regulation 8, Rule 34. Republic Services request the remaining requirements from Condition #818, Part 2b from Permit Application 23493 be closed and an alteration to Condition #818 to allow the following:

- Installation of up to 100 new vertical wells
- Installation of up to 40 new horizontal collectors
- Decommissioning of up to 150 vertical wells
- Decommissioning of up to 40 horizontal collectors

EMISSION CALCULATIONS

Landfill gas collection system well alterations are intended to ensure that the landfill gas collection system is properly maintained and operated. These alterations are intended to expand the gas collection system into recently filled areas of the landfill, to optimize the performance of the landfill gas collection system, and to maintain or improve the overall capture efficiency of the gas collection system. Since these alterations will not result in gas collection rates that exceed the permitted capacity of the control systems for this site, these alterations will not result in any change to the maximum permitted emissions from the landfill or the on-site flares.

STATEMENT OF COMPLIANCE:

Regulation 2 - Permits, Rule 1 – General Requirements

Ministerial Projects (Section 2-1-311)

This application involves a change in permit condition at the Vasco Road Landfill that does not result in an increase of any emissions. The alterations to the landfill gas collection system are part of the overall emission control system for the landfill. Therefore, this proposed change of the permit conditions is categorically exempt from CEQA review pursuant to Regulations 2-1-312.1, 2-1-312.2, and 2-1-312.6. No further CEQA review is required.

Public Notice, Schools (Section 2-1-412)

The outer boundary of the nearest K-12 school, Andrew N. Christensen Middle School, is more than 1,000 feet from the facility. Therefore, project is not subject to the public notification requirements of this regulation.

Regulation 2 - Permits, Rule 2 – New Source Review

Since this project will not result in any increase of maximum permitted emissions from S-1, this project is not subject to the New Source Review or any requirements of Regulation 2, Rule 2.

Regulation 2- Permits, Rule 5 New Source Review of Toxic Air Contaminants

Since this project will not result in any increase of maximum permitted emissions from S-1, this project is not subject to the New Source Review for Toxic Air Contaminants or any requirements of Regulation 2, Rule 5.

Regulation 2- Permits, Rule 6 Major Facility Review

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR) and BAAQMD Regulations 2, Rule 6, Major Facility Review because it is a designated facility as defined by BAAQMD Regulation 2-6-204. In addition to being a designated facility, the maximum permitted CO emission rate for this site exceeds 100 tons/year of CO. Therefore, a Title V permit is required pursuant to Regulation 2-6-301 as well as Regulation 2-6-304.

The initial MFR Permit for this facility was issued on February 5, 2004 with the most recent renewal occurring on June 4, 2012. The proposed permit condition revisions will require a minor revision of the MFR permit and will be discussed in the Statement of Basis for Application for the minor revision under the Title V Application #28411.

Regulation 8- Organic Compounds, Rule 34 Solid Waste Disposal Sites

Landfill Gas Collection and Emissions Control System Requirements (Section 8-34-301)

Regulation 8, Rule 34 requires this facility be equipped with a landfill gas collection system that is properly maintained and properly operated. The main gas collection system includes a total of 110 vertical wells and six horizontal collectors. The intermittent gas collection system consist of four leachate risers and one leachate horizontal collector.

Table 1. Landfill Gas Collection System – Active Vertical Wells

09-01	10-10	EW-106	EW-124	EW-140	EW-90A	EW-73	EW-91
09-04	10-11	EW-107	EW-125	EW-141	EW-9	EW-75	EW-92
09-06	10-12	EW-108	EW-127	EW-142	EW-14	EW-76	EW-94
09-07		EW-109	EW-128	EW-143	EW-19	EW-77	EW-95A
09-08	06-01R	EW-110	EW-129	EW-145	EW-23	EW-78	EW-96
09-09	06-03R	EW-111	EW-130	EW-146	EW-25	EW-79	EW-97
09-10	06-04R	EW-112	EW-131	EW-147	EW-27	EW-80	EW-98
09-11		EW-113	EW-132	EW-31-A	EW-30	EW-81	EW-99
09-12	EW-93A	EW-114	EW-133	EW-33-A	EW-41R	EW-82	
	EW-100	EW-115	EW-134	EW-34-A	EW-42	EW-83	
10-01	EW-101	EW-116	EW-135	EW-38-A	EW-44	EW-84	
10-03	EW-102	EW-117	EW-136	EW-68A	EW-63	EW-85	

10-04	EW-103	EW-118	EW-137	EW-71B	EW-64	EW-87	
10-05	EW-104	EW-119	EW-138	EW-72R	EW-65	EW-88	
10-09	EW-105	EW-121	EW-139	EW-86A	EW-70	EW-89	

Table 2. Landfill Gas Collection System -Active Horizontal Collectors

DU12GT02	DU12GT03	DU12GT05	DU12LR01	DU12LR02	DU12LR03

Table 3: Landfill Gas Collection System – Active Vertical Leachate Riser Wells and Leachate Horizontal Collector

LRW-001	LRW-002	LRW-003	LRW-004	LHC-001

Federal Requirements

Emissions Guidelines for MSW Landfills: The S-1 Vasco Road Landfill is subject to the Emissions Guidelines (EG) for Municipal Solid Waste (MSW) Landfills, 40 CFR, Part 60, Subpart Cc. This regulation requires the facility to meet the EG requirements approved in the state plan for that District. For the Bay Area, Regulation 8, Rule 34 was adopted as the state plan for implementing these federal EG requirements. Thus, compliance with Regulation 8, Rule 34 constitutes compliance with the EG requirements.

NESHAPS for MSW Landfills: This landfill is also subject to eh NESHAPs for MSW Landfills (40 CFR, Part 63, Subpart AAAA). This NESHAP requires that subject facilities implement startup, shutdown, malfunction plans (SSM Plans) and comply additional reporting requirements. All applicable requirements are contained in the existing MFR permit. This facility is expected to continue to comply with these requirements.

State Requirements

This facility is subject to CARB's Landfill Methane Capture Rule (CCR, Title 17, Sections 95460-95476), which requires landfills to collet and control landfill gas and establish surface leak limits and methane control efficiency requirements for control devices. Section 95464(c) requires each wellhead to be operated under vacuum (negative pressure). The facility is in compliance with these requirements with the operation of the landfill gas collection system.

CONDITIONS

I recommend the following revisions to Condition #818, Part 2 as shown below in the strike through and underline formatting:

COND# 818 ----------

For: S-1 Vasco Road Landfill - Waste Decomposition Process with Gas Collection System; Abated by A-4 Landfill Gas Flare;
S-12 Vasco Road Landfill - Waste and Cover Material ~~Dumpling~~ Dumping;
S-13 Vasco Road Landfill - Excavating, Bulldozing, and Compacting Activities

1. All collected landfill gas shall either be abated by the on-site Landfill Gas Flare (A-4) or shall be vented to both A-4 and to the off-site Ameresco Vasco Road, LLC Facility (Plant # 20432) for processing and use as fuel in this off-site energy plant.
   a. During any time that the landfill gas flow rate to the off-site energy plant is less than or equal to 1200 scfm, the A-4 Flare shall operate concurrently with the off-site energy plant on a continuous basis and in compliance with all applicable limits for this flare.
   b. During any time that landfill gas is diverted to the off-site energy plant, the owner/operator may operate the A-4 Flare on a less than continuous basis, provided that the owner/operator demonstrates that all of the following criteria have been satisfied:
      i) the landfill gas flow rate to the off-site energy plant is greater than 1200 scfm;
      ii) the remaining amount of landfill gas available for flaring is less than 800 scfm or the equivalent heat input rate for this excess landfill gas is less than 24 MM BTU/hour;
      iii) a sufficient amount of landfill gas is collected and controlled at all times to prevent violation of any applicable landfill surface leak limits;
      iv) the owner/operator shall measure the methane concentration in the landfill gas at the main header at least once per month (during routine wellfield monitoring) and shall calculate the average methane content for each rolling 3-month period. If this average landfill gas methane content exceeds 50%, the owner/operator shall attempt to restart the A-4 flare within one week of discovery of this excess. If the restart is successful, A-4 shall operate continuously until the criteria in Part 1(b)(ii) occur. The owner/operator shall attempt to restart the A-4 flare once per week until the rolling average methane content calculated above is below 50% methane.
      v) the owner/operator shall maintain records of landfill gas flow rate data, landfill gas methane concentration measurements, equivalent heat input rates and calculation procedures, flare restart attempts, and flare operating times to demonstrate compliance with Parts 1b(i-iv).
   c. Raw landfill gas shall not be vented to the atmosphere except for unavoidable landfill gas emissions, which occur during collection system installation, maintenance, or repair that is performed in compliance with Regulation 8, Rule 34, Sections 113, 116, 117, or 118 and inadvertent component or surface leaks that do not violate 8-34-301.2 or 8-34-303.

   (Basis: Regulations 8-34-301 and 8-34-303)

2. The Permit Holder shall apply for and receive a Change of Conditions before altering the landfill gas collection system described in Part 2a below. Increasing or decreasing the number of wells or collectors, changing the length of collectors, or changing the locations of wells or collectors are all considered to be alterations that are subject to this requirement. The authorized number of landfill gas collection system components is the baseline count listed below plus any components added and minus any components decommissioned pursuant to Part 2b as evidenced by start-up/shut-down notification letters submitted to the District.
   a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below.
      i) Main Gas Collection System
         Required Components
         Total Number of Vertical Wells: ~~101~~ 110
         Total Number of Horizontal Collectors: ~~2~~ 6
      ii) Intermittent Gas Collection System
         Required Components
         Leachate Recirculation Wells: 4
         Leachate Recirc. Horiz. Collectors: ~~3~~ 1

   b. The Permit Holder has been issued a Change of Conditions (Application Number: ~~23493~~ 29010) for the landfill gas collection system alterations listed below.
      Installation of Vertical Wells: ~~16~~ 100
      Installation of Horizontal Collectors: ~~10~~ 20
      Decommissioning of Vertical Wells: ~~53~~ 150
      Decommissioning of Horizontal Collectors: ~~0~~ 15

      Wells installed or permanently shut down pursuant to subpart b shall be added to or removed from subpart a in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415. The Permit Holder shall notify the District of the expected installation or shut-down date prior to commencing any component alterations pursuant to subpart b and shall maintain records of the initial operation date for each new well and the permanent decommissioning date for each shut-down well. (Basis: Regulations 2-1-301, 8-34-301.1, 8-34-304, 8-34-305)

3. The permit holder shall comply with the following landfill gas collection system operating requirements.
   a. The landfill gas collection system described in Part 2a(i) shall be operated continuously, as defined in Regulation 8-34-219 and Part 3b below. Wells shall not be shut off, disconnected or removed from operation without written authorization from the APCO, unless the Permit Holder complies with all applicable requirements of Regulation 8, Rule 34, Sections 113, 116, 117, and 118.
      (Basis: Regulation 8-34-301.1)

b. For the specified wells and collectors listed below, the gas collection system operating requirements listed in Parts 3b(i-ii) shall replace the wellhead requirements identified in Regulation 8-34-305.2 through 8-34-305.4. All wells and collectors remain subject to the Regulation 8-34-305.1 requirement to maintain vacuum on each wellhead and to the Regulation 8-34-505 monthly monitoring requirements. The specified wells and collectors shall be deemed to be operating continuously, if the components are complying with Regulation 8-34-305.1 and any applicable limits in Part 3b(i-ii). In addition, Part 3b(iii) clarifies the applicable limits for vaults containing gas collection system components. If the Permit Holder discovers an excess of a Part 3b(i-iii) limit and corrects the excess in accordance with the Regulation 8-34-414 repair schedule, the excess shall not be deemed a violation of this part.

(Basis: Regulations 8-34-301.1, 8-34-301.2, 8-34-303, and 8-34-305)

i) The Regulation 8-34-305.2 temperature limit shall not apply to the wells or collectors listed below. The landfill gas temperature in each of the components listed below shall not exceed 140 degrees F.

OEW-HA, OEW-HB, EW-9, EW-33A, and EW-44.

ii) The Regulation 8-34-305.3 nitrogen concentration limit and the Regulation 8-34-305.4 oxygen concentration limit shall not apply to the wells listed below, provided that the oxygen concentration in the landfill gas at the main header does not exceed 5% O2 by volume (dry basis) and the methane concentration in the landfill gas at the main header is not less than 35% CH4 by volume (dry basis). The permit holder shall monitor the landfill gas from the main header for oxygen and methane on a monthly basis to demonstrate compliance with this part.

OEW-6, OEW-HA, OEW-HB, EW-9, EW-27, EW-29, EW-31, EW-33, EW-33A, EW-41, HZ-09-02, HZ-09-03, HZ-09-04, HZ-09-05, HZ-09-06, HZ-09-07, and HZ-09-08.

iii) This subpart applies to vaults containing gas collection system equipment, where the top of the vault is located at or near the surface of the landfill. The vault shall be monitored at both 1 cm from the vault (for comparison to the component leak limit of Regulation 8-34-301.2) and 2 inches above the vault (for comparison to the surface leak limit of Regulation 8-34-303).

a) If during an inspection the District's monitored readings show compliance with both the component leak limit and the surface leak limit, the vault and components within shall be deemed to be in compliance with Regulations 8-34-301.2 and 8-34-303. No further testing is necessary.

b) If the District's monitored readings show an excess of either the component leak limit or the surface leak limit, the operator shall comply with the Regulation 8-34-415 Repair Schedule for Landfill Surface Leak Excesses, until the source of the leak can be identified. The vault shall be opened and allowed to air out for at least 10 minutes. The collection system components within the vault shall be re-monitored at 1 cm from

the components and the landfill surface surrounding the vault shall be re-monitored at 2 inches above the surface.

c) If the re-monitoring (after airing the vault for 10 minutes) shows no component leaks and no surface leaks, the vault and components within shall be deemed to be in compliance with Regulations 8-34-301.2 and 8-34-303.

d) If the re-monitoring shows a component leak, or the operator's further evaluation determines that the source of the emissions excess was a collection system component, then a violation of 8-34-301.2 shall be deemed to have occurred; and the operator shall take all necessary corrective action and shall comply with all applicable reporting requirements.

e) If the re-monitoring shows a surface leak but not a component leak, the operator shall continue to comply with all applicable provisions of the Regulation 8-34-415 Repair Schedule for Landfill Surface Leak Excesses.

c. The landfill gas collection system described in Part 2a(ii) is not required to be operated continuously and is subject to the alternative wellhead standards described below, as allowed under Regulation 8-34-305. The CCR, Title 17, Section 95464© Wellhead Gauge Pressure Requirement continues to apply to these components.

i) These components shall be connected to the vacuum system as needed to prevent violation of applicable surface and component leak limits.

ii) This subsection applies to these components instead of the limits in Regulation 8-34-305.3 or 305.4. The oxygen concentration in each wellhead shall not exceed 15% by volume. Regulation 8-34-414 and subpart 3©(iv) below may be used in conjunction with this alternative wellhead limit.

iii) The owner/operator shall monitor each component on a monthly basis for gauge pressure, oxygen, methane, and temperature, regardless of whether the component is connected to vacuum or not.

iv) The component may be disconnected from the vacuum system if any of the following are detected: oxygen > 15% or temperature > 131 oF.

v) The component shall be connected to vacuum if any pressure is detected.

(Basis: Regulation 8-34-404 and CCR, Title 17, 95468(a)(1))

4. A temperature monitor with readout display and continuous recorder shall be installed and maintained on the Flare (A-4). One or more thermocouples shall be placed in the primary combustion zone of the flare and shall accurately indicate flare combustion temperature at all times. Temperature charts showing continuous combustion zone temperature shall be retained for at least five years and made readily available to District staff upon request.
(Basis: Regulations 8-34-501.3 and 8-34-507)

5. The combustion temperature of the Flare (A-4) shall be maintained at a minimum of 1402 degrees F, averaged over any 3-hour period. If a source test demonstrates compliance with all applicable requirements at a different temperature, the APCO may revise the minimum combustion zone temperature limit, in accordance with the procedures identified in Regulation 2-6-414 or 2-6-415, based on the following criteria. The minimum combustion zone temperature for the flare shall be equal to the average combustion zone temperature measured during the most recent complying source test minus 50 degrees F, provided that the minimum combustion zone temperature shall not be less than 1400 degrees F. (Basis: RACT for CO and Regulations 2-5-301 and 8-34-301.3)

6. The Flare (A-4) shall be equipped with auto restart capability, a local alarm system, and automatic temperature controlled louvers.
(Basis: Regulation 8-34-301 and RACT for CO)

7. The A-4 Flare shall be fired on landfill gas. No landfill gas condensate or leachate may be burned in the A-4 Flare. Propane or other similar clean burning fuels may be used during flare start-up. (basis: Cumulative Increase)

8. The concentration of nitrogen oxides (NOx) in the flue gas from the Landfill Gas Flare (A-4) shall not exceed 11 ppmv of NOx, corrected to 15% oxygen, dry basis. This is equivalent to 0.049 pounds of NOx (calculated as NO2) per million BTU. (basis: RACT)

9. DELETED

10. The concentration of carbon monoxide (CO) in the flue gas from the Landfill Gas Flare (A-4) shall not exceed 73 ppmv of CO, corrected to 15% oxygen, dry basis. This is equivalent to 0.19 pounds of CO per million BTU. (Basis: RACT)

11. DELETED

12. Total reduced sulfur compounds in the collected landfill gas shall be monitored as a surrogate for monitoring sulfur dioxide in the exhaust from the flare. The concentration of total reduced sulfur compounds in the collected landfill gas shall not exceed an annual average of 320 ppmv, reported as H2S, dry basis. (basis: RACT for SO2 and Regulation 9-1-302)
    a. To demonstrate compliance with this limit, the Permit Holder shall monitor the collected landfill gas for sulfur content on a quarterly basis using a combination of field testing and laboratory analytical results.

b. When using the field testing procedure, the Permit Holder shall measure the hydrogen sulfide (H2S) content in the landfill gas using a Draeger tube. The total reduced sulfur concentration shall be calculated based on the field test results by multiplying the measured H2S concentration by 1.2.
c. For laboratory analyses, the sample shall be a composite s ample collected over a period of no less than 30 minutes and analyzed for the sulfur compounds identified in Part 21.
d. The Permit Holder shall record the date and results of all field tests, the calculated TRS concentration based on these field tests, and the date and results of the annual laboratory analyses in a District approved log. The annual average TRS concentration shall be calculated and recorded for each rolling 4-quarter period based on the TRS data recorded above.

13. The Heat Input to the A-4 Landfill Gas Flare shall not exceed 2880 million BTU per day and shall not exceed 1,051,200 million BTU during any consecutive 12-month period. In order to demonstrate compliance with this part, the Permit Holder shall calculate and record on a monthly basis the maximum daily and total monthly heat input to the flare based on the landfill gas flow rate recorded pursuant to Part 22g, the monthly methane concentration measurements conducted pursuant to Part 3b(ii), and a high heating value for methane of 1013 BTU/ft3 at 60 degrees F.
(Basis: Offsets, Cumulative Increase, and Regulation 2-1-301)

14. The Permit Holder shall comply with the following waste acceptance and disposal limits and shall obtain the appropriate New Source Review permit, if one of the following limits is exceeded:
    a. Total amount of solid waste (as defined in Regulation 8-34-202) accepted at the landfill shall not exceed 2,518 tons in any day (except during temporary emergency situations approved by the Local Enforcement Agency). Vehicle traffic that is transporting incoming or outgoing solid waste or other materials shall not exceed 625 vehicles per day. (Basis: Regulation 2-1-301)
    b. The total cumulative amount of all decomposable materials placed in the landfill shall not exceed 23.8 million tons. Exceedance of this cumulative tonnage limit is not a violation of the permit and does not trigger the requirement to obtain a New Source review permit, if the operator can, within 30 days of the date of discovery of the exceedance, provide documentation to the District demonstrating, in accordance with BAAQMD Regulation 2-1-234.3, that the limit should be higher. (Basis: Regulation 2-1-234.3)
    c. The maximum design capacity of the landfill (total volume of all wastes and cover materials placed in the landfill, excluding final cover) shall not exceed 31.65 million cubic yards.

(Basis: Regulation 2-1-301)

15. This facility is not subject to Regulation 8, Rule 40 because the landfill does not accept contaminated soil (soil containing more than 50 ppmw of volatile organic compounds, VOCs). The following types of materials may be accepted:
    a. Metal-laden soil (soil containing metals above naturally occurring background concentrations), VOC-laden soil (soil containing VOCs that is not "contaminated" soil), or other materials for which the Permit Holder has appropriate documentation demonstrating that either the organic content of the soil or the organic concentration above the soil is below the "contaminated" level (as defined in Regulation 8, Rule 40, Sections 205, 207, and 211).
    b. Materials for which the Permit Holder has no documentation to prove that soil is not contaminated, but the source of the soil is known and there is no reason to suspect that the soil might contain organic compounds or metal compounds at other than naturally occurring background concentrations.
    c. Materials which the Permit Holder plans to test in order to determine the VOC contamination level in the soil, provided that the material is sampled within 24 hours of receipt by this site and is handled as if the soil were contaminated until the Permit Holder receives the test results. The Permit Holder shall collect soil samples in accordance with Regulation 8-40-601. The organic content of the collected soil samples shall be determined in accordance with Regulation 8-40-602.
        i) If these test results indicate that the soil is contaminated or if the soil was not sampled within 24 hours of receipt by the facility, the Permit Holder must continue to handle the soil in accordance with Regulation 8, Rule 40, until the soil has been removed from this site. For the purposes of Regulations 8-40-306.3-306.5, storing soil in a temporary stockpile or pit and co-mingling, blending, or mixing of soil lots are not considered treatment.
        ii) If these test results indicate that the soil, as received at this site, has an organic content of 50 ppmw or less, then the soil may be considered to be not contaminated and need not be handled in accordance with Regulation 8, Rule 40 any longer.

    (Basis: Regulation 8-40-301)

16. The total amount of metal-laden and VOC-laden soil used as cover material shall not exceed 180,000 tons during any consecutive 12 month period. The metal concentrations of any metal-laden soil shall not exceed the following limits:

Metals	Maximum Concentration (ppmw)
Arsenic	130
Beryllium	75
Cadmium	100

Chromium VI	7	
Copper	25007	
Lead	1000	
Mercury		20
Nickel	2000	
Selenium	100	
Zinc	5000	

Parts a. and b. below identify the maximum usage rates and maximum allowed concentrations of toxic compounds that may be present in the two types of VOC-laden soil used that may be used as cover material at this site.

a. For soil containing high concentrations of certain chlorinated compounds, the amount used as cover material shall not exceed 10,000 tons during any consecutive 12 month period. Soil shall be subject to this throughput limit if the soil contains chlorinated compounds in amounts exceeding any of the following concentrations:
    - 0.05 ppmw of carbon tetrachloride,
    - 0.05 ppmw of chloroform,
    - 0.40 ppmw of 1,4 dichlorobenzene,
    - 0.05 ppmw of 1,2 dichloroethane,
    - 0.40 ppmw of tetrachloroethylene, or 0.05 ppmw of vinyl chloride.

    Under no circumstances shall the Permit Holder use soil for cover, which contains organic compounds in excess of the following concentrations:
    - 0.50 ppmw of benzene,
    - 0.50 ppmw of carbon tetrachloride,
    - 6.00 ppmw of chloroform,
    - 7.50 ppmw of 1,4 dichlorobenzene,
    - 0.50 ppmw of 1,2 dichloroethane,
    - 0.70 ppmw of tetrachloroethylene,
    - 0.50 ppmw of trichloroethylene, or 0.20 ppmw of vinyl chloride.

b. For soil containing low concentrations of certain chlorinated compounds, the amount used as cover material shall not exceed 170,000 tons during any consecutive 12 month period. Soil shall be subject to this throughput limit if the soil contains organic compounds in amounts less than or equal to all of the following concentrations:
    - 0.50 ppmw of benzene,
    - 0.05 ppmw of carbon tetrachloride,
    - 0.05 ppmw of chloroform,
    - 0.40 ppmw of 1,4 dichlorobenzene,
    - 0.05 ppmw of 1,2 dichloroethane,
    - 0.40 ppmw of tetrachloroethylene,
    - 0.50 ppmw of trichloroethylene, and 0.05 ppmw of vinyl chloride.

(Basis: Offsets and Regulations 2-5-302 and 8-2-301)

17. DELETED

18. In order to demonstrate compliance with Parts 15 and 16, the Permit Holder shall maintain the following records in an APCO approved log book.
    a. For any metal-laden or VOC-laden soil that will be used as daily or intermediate cover material, the Permit Holder shall record the following:
        i) soil lot number (or other means of tracking the soil on-site),
        ii) date and time the soil was received,
        iii) amount of soil received,
        iv) total VOC content measured by the waste generator, and
        v) concentrations in the soil of benzene, carbon tetrachloride, chloroform, 1,4 dichlorobenzene, 1,2 dichloroethane, tetrachloroethylene, trichloroethylene and vinyl chloride.
    b. For any material subject to Part 15c:
        i) soil lot number,
        ii) date and time that the soil was resampled on-site,
        iii) total VOC concentration in the resampled soil.
    c. For each soil lot number of metal-laden or VOC-laden soil received at the landfill, the owner/operator of S-1 shall record the following.
        i) date and time that any of the soil in the lot was used for cover material,
        ii) describe the location where the soil was placed,
        iii) specify whether the soil was used for daily or intermediate cover,
        iv) record, on a daily basis, the amount of soil placed as cover material,
        v) summarize, on a daily basis, the total amount of metal-laden and VOC-laden soil used for cover (if multiple soil lots were placed during any one day), and
        vi) summarize, on a monthly basis, the total amount of metal-laden and VOC-laden soil used for daily or intermediate cover. All logs, sampling records, analytical results, and notification records shall be made available to District staff upon request and shall be kept on site for a minimum of 5 years from the date of entry.

    (Basis: Offsets and Regulations 2-5-302 and 8-2-301)

19. Water and/or dust suppressants shall be applied to all unpaved roadways and active soil removal and fill areas associated with this landfill as necessary to prevent visible particulate emissions. Paved roadways at the facility shall be kept sufficiently clear of dirt and debris as necessary to prevent visible particulate emissions from vehicle traffic or wind.
    (Basis: Regulations 2-1-403, 6-1-301, and 6-1-305)

20. In order, to demonstrate compliance with Parts 5 and 8-

13 and Regulation 8, Rule 34, Sections 301.3 and 412, the Permit Holder shall ensure that a District approved source test is conducted annually on the Landfill Gas Flare (A-4). The annual source test shall determine the following:

a. landfill gas flow rate to the flare (dry basis);
b. concentrations (dry basis) of carbon dioxide (CO2), nitrogen (N2), oxygen (O2), methane (CH4), and total non-methane organic compounds (NMOC) in the landfill gas;
c. stack gas flow rate from the flare (dry basis);
d. concentrations (dry basis) of NOx, CO, CH4, NMOC, and O2 in the flare stack gas;
e. the NMOC destruction efficiency achieved by the flare; and
f. the average combustion temperature in the flare during the test period.

Each annual source test shall be conducted no later than 12 months after the previous source test. The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division within 45 days of the test date. (Basis: RACT, Offsets, Cumulative Increase and Regulations 2-5-301, 2-5-302, 8-34-301.3 and 8-34-412)

21. To demonstrate compliance with Part 12 above and Regulations 8-34-412 and 9-1-302, the Permit Holder shall conduct a characterization of the landfill gas concurrent with the annual source test required by Part 20 above. The landfill gas sample shall be drawn from the main landfill gas header. In addition to the compounds listed in part 20b, the landfill gas shall be analyzed for all the organic and sulfur compounds listed below. All concentrations shall be reported on a dry basis. The test report shall be submitted to the Compliance and Enforcement Division within 45 days of the test date.
(Basis: AB-2588 Air Toxic Hot Spots Act, RACT for S02, and Regulations 2-5-302, 8-34-412, and 9-1-302)

Organic Compounds
acrylonitrile
benzene
benzyl chloride
carbon tetrachloride
chlorobenzene
chloroethane
chloroform
1,1 dichloroethane
1,1 dichlorethene
1,2 dichloroethane
1,4 dichlorobenzene
ethylbenzene
ethylene dibromide

hexane
isopropyl alcohol
methyl ethyl ketone
methylene chloride
perchloroethylene
toluene
1,1,1 trichloroethane
1,1,2,2 tetrachloroethane
trichloroethylene
vinyl chloride
xylenes

Sulfur Compounds
carbon disulfide
carbonyl sulfide
dimethyl sulfide
ethyl mercaptan
hydrogen sulfide
methyl mercaptan

22. The Permit Holder shall maintain the following records in an APCO approved log book.
    a. Record the total amount of solid waste received at S-1 and the total number of vehicles transporting solid waste or other materials to and from the site on a daily basis. Summarize these daily waste acceptance and vehicle traffic records for each calendar month.
    b. For each area or cell that is not controlled by a landfill gas collection system, maintain a record of the date that waste was initially placed in the area or cell. Record the cumulative amount of waste placed in each uncontrolled area or cell on a monthly basis.
    c. If the Permit Holder plans to exclude an uncontrolled area or cell from the collection system requirement, the Permit Holder shall also record the types and amounts of all non-decomposable waste placed in the area and the percentage (if any) of decomposable waste placed in the area.
    d. Record of the dates, locations, and frequency per day of all watering activities on unpaved roads or active soil or fill areas. Record the dates, locations, and type of any dust suppressant applications. Record the dates and description of all paved roadway cleaning activities. Written documentation of standard watering procedures combined with completion of daily check lists may satisfy these daily record keeping requirements. All records shall be summarized on monthly basis.
    e. Record the initial operation date for each new landfill gas well and collector.
    f. Maintain an accurate map of the landfill, which indicates the locations of all refuse boundaries and the locations of all wells and collectors (using unique identifiers) that

are required to be operating continuously pursuant to part 2a. Any areas containing only non-decomposable waste shall be clearly identified. This map shall be updated at least once a year to indicate changes in refuse boundaries and to include any newly installed wells and collectors.

g. Record the operating times and the landfill gas flow rate to the A-4 Landfill Gas Flare on a daily basis. Summarize these records on a monthly basis. Calculate and record the heat input to A-4, pursuant to Part 13. Summarize the heat input rate to the A-4 Landfill Gas Flare for each consecutive rolling 12-month period.

h. Maintain records of all test dates and test results performed to maintain compliance Parts 3, 8-13, 15-16, or 20-21 or to maintain compliance with any applicable rule or regulation. All records shall be maintained on site or shall be made readily available to District staff upon request for a period of at least 5 years from the date of entry. These record keeping requirements do not replace the record keeping requirements contained in any applicable rules or regulations.

(Basis: RACT, Offsets, Cumulative Increase, Regulations 2-1-301, 2-5-301, 2-5-302, 2-6-501, 6-1-301, 6-1-305, 8-2-301, 8-34-301, 8-34-304, and 8-34-501)

23. The annual report required by BAAQMD Regulation 8-34-411 shall be submitted in two semi-annual increments. The reporting period for the first increment of the Regulation 8-34-411 annual report that is submitted subsequent to the issuance of the MFR Permit for this site shall be from December 1, 2003 through June 30, 2004. This first increment report shall be submitted by July 31, 2003. The reporting periods and report submittal due dates for all subsequent increments of the Regulation 8-34-411 report and for all semi-annual increments of MSW Landfill NESHAP report (required pursuant to 40 CFR Part 63.1980(a)) shall be synchronized with the reporting periods and report submittal due dates for the semi-annual MFR Permit monitoring reports that are required by Section I.F. of the MFR Permit for this site. A single report may be submitted to satisfy the requirements of Section I.F, Regulation 8-34-411, and 40 CFR Part 63.1980(a), provided that all items required by each applicable reporting requirement are included in the single report. (Basis: Regulation 8-34-411 and 40 CFR Part 63.1980(a))

RECOMMENDATIONS:

I recommend a Change of Condition (Condition #818) be issued for the following:

S-1 Landfill – Waste Decomposition Process

Loi Chau, Air Quality Engineer Date

APPENDIX D:

NSR PERMIT EVALUATION
FOR APPLICATION # 29140

ENGINEERING EVALUATION
for
Permit Condition Changes for the
Vasco Road Landfill, LLC; Plant: 5095
Application: 29140

BACKGROUND

The Applicant has applied for a Change of Permit Condition for the following:

S-1 Landfill – Waste Decomposition Process

Site Description

Republic Services Vasco Road, LLC (Republic Services) Operates the Vasco Road Landfill Facility located in Livermore, CA. This facility includes an active landfill (S-1, S-12, and S-13, a landfill gas flare (A-4), a diesel fired waste tipper engine (S-9), a non-retail gasoline dispensing facility (S-7), and green waste processing operations (S-14, S-15, A-14, and A-15). As required by District, state, and federal regulations the active landfill is equipped with landfill gas collection and control systems to reduce the organic compound, toxic air contaminants, and greenhouse gas emissions from the landfill. Until recently, all collected landfill gas has been controlled by the on-site enclosed flare (A-4)

Ameresco Vasco Road, LLC (Plant #20432) constructed a landfill gas to energy plant at this Livermore, CA facility that will use landfill gas collected from the Vasco Road Landfill as fuel for two IC engines (S-1 and S-2). This energy plant also includes a Landfill Gas Treatment System (S-3), which removes siloxanes and other organic and sulfur contaminants from the landfill gas before it is burned in the engines, and a Waste Gas Flare (A-1), which controls waste gas emissions from desorption cycle included in S-3. This new energy plant began operation of all equipment in January 2014.

At full capacity, this energy plant can burn up to 1590 scfm of landfill gas at a heat content of 500BTU/scf or about 48 MM BTU/hour of heat input. This maximum capacity is about 90% of the current landfill gas collection rate (1755 scfm in 2013). As discussed in the Engineering Evaluation Report for Application # 25904, the District added permit conditions to ensure that venting gas to this energy plant would not result in an overall decrease in the landfill gas collection rate for this landfill that might lead to excess landfill surface emissions.

Current Project

On February 26, 2018, Republic Services submitted Application #29140 to request Change of Condition for the landfill gas collection system. Two wells, VR12GT4R, the replacement well for VR12GT04, and VR12GT05, are located in areas with low amounts of landfill gas available for extraction. A review of VR12GT05 and VR12GT04 confirms the wells are under constant vacuum with an oxygen concentration greater than 5% by volume. Regulation 8-34-305 requires the well operate (1) under vacuum, (2) the wellhead temperatures are less than 131 degrees F and either (3) the nitrogen concentration shall be less than 20% by volume or (4) the oxygen concentration shall be less than 5% by volume. Republic Services is requesting less than continuous operations and higher operating values for oxygen for VR12GT4R and VR12GT05 so the wells can remain active while remaining in compliance with the permit conditions.

In Application #29010, Condition #818, Part 2b revised the number of modifications permitted for the landfill gas collection system. As of the letter received on June 7, 2018 following the approval of Application #29010, Republic services has installed 8 vertical wells, decommissioned 3 vertical wells, and decommissions 1 horizontal collector. As part of this evaluation, Condition #818, Parts 2a and 2b will be updated to incorporate the information provided in the notification letters.

EMISSION CALCULATIONS

The request for less than continuous operation and higher operating values for oxygen for VR12GT4R and VR12GT05 are intended to optimize the performance of the landfill gas collection system, and to maintain or improve the overall capture efficiency of the gas collection system. Since these alterations will not result in gas collection rates that exceed the permitted capacity of the control systems for this site, these alterations will not result in any change to the maximum permitted emissions from the landfill or the on-site flares.

STATEMENT OF COMPLIANCE:

Regulation 2 - Permits, Rule 1 – General Requirements

Other Categories of Exempt Projects (Section 2-1-312)

This application involves a change in permit condition at the Vasco Road Landfill that does not result in an increase of any emissions. The alterations to the landfill gas collection system are part of the overall emission control system for the landfill. Therefore, this proposed change of the permit conditions is categorically exempt from CEQA review pursuant to Regulations 2-1-312.1 and 2-1-312.6. No further CEQA review is required.

Public Notice, Schools (Section 2-1-412)

The outer boundary of the nearest K-12 school, Andrew N. Christensen Middle School, is more than 1,000 feet from the facility. Therefore, project is not subject to the public notification requirements of this regulation.

Regulation 2 - Permits, Rule 2 – New Source Review

Since this project will not result in any increase of maximum permitted emissions from S-1, this project is not subject to the New Source Review or any requirements of Regulation 2, Rule 2.

Regulation 2- Permits, Rule 5 New Source Review of Toxic Air Contaminants

Since this project will not result in any increase of maximum permitted emissions from S-1, this project is not subject to the New Source Review for Toxic Air Contaminants or any requirements of Regulation 2, Rule 5.

Regulation 2- Permits, Rule 6 Major Facility Review

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR) and BAAQMD Regulations 2, Rule 6, Major Facility Review because it is a designated facility as defined by BAAQMD Regulation 2-6-204. In addition to being a designated facility, the maximum permitted CO emission rate for this site exceeds 100 tons/year of CO. Therefore, a Title V permit is required pursuant to Regulation 2-6-301 as well as Regulation 2-6-304.

The initial MFR Permit for this facility was issued on February 5, 2004 with the most recent renewal occurring on June 4, 2012. The proposed permit condition revisions will require a minor revision of the MFR permit and will be discussed in the Statement of Basis for Application for the minor revision under the Title V Application #28411 for the Title V Renewal.

Regulation 8- Organic Compounds, Rule 34 Solid Waste Disposal Sites

Landfill Gas Collection and Emissions Control System Requirements (Section 8-34-301)

Regulation 8, Rule 34 requires this facility be equipped with a landfill gas collection system that is properly maintained and properly operated. The main gas collection system includes a total of 115 vertical wells and seven horizontal collectors. The intermittent gas collection system consists of four leachate risers.

Table 1. Landfill Gas Collection System – Active Vertical Wells

09-01	10-10	EW-106	EW-124	EW-140	EW-31-A	EW-30	EW-83
09-04	10-11	EW-107	EW-125	EW-141	EW-33A	EW-41R	EW-84
09-06	10-12	EW-108	EW-127	EW-142	EW-34-A	EW-42	EW-85
09-07		EW-109	EW-128	EW-145	EW-38-A	EW-44	EW-87
09-08	06-01R	EW-110	EW-129	EW-146	EW-68A	EW-63	EW-88
09-09	06-03R	EW-111	EW-130	EW-147	EW-71B	EW-64	EW-89
09-10	06-04R	EW-112	EW-131	EW-148	EW-72R	EW-65	EW-91
09-11		EW-113	EW-132	EW-149	EW-86A	EW-75	EW-92
09-12	EW-93A	EW-114	EW-133	EW-150	EW-90A	EW-76	EW-94
	EW-100	EW-115	EW-134	EW-151	EW-9	EW-77	EW-95A
10-01	EW-101	EW-116	EW-135	EW-152R	EW-14	EW-78	EW-96
10-03	EW-102	EW-117	EW-136	EW-153R	EW-19	EW-79	EW-97
10-04	EW-103	EW-118	EW-137	EW-154R	EW-23	EW-80	EW-98
10-05	EW-104	EW-119	EW-138	EW-155	EW-25	EW-81	EW-99
10-09	EW-105	EW-121	EW-139		EW-27	EW-82	

Table 2. Landfill Gas Collection System -Active Horizontal Collectors

VR12GT02	VR12GT03	VR12GT05	VR12LR01	VR12LR02	VR12LR03

Table 3: Landfill Gas Collection System – Active Vertical Leachate Riser Wells and Leachate Horizontal Collector

LRW-001	LRW-002	LRW-003	LRW-004

Wellhead Requirements (Section 8-34-305)

The wellheads are required to (1) operate under vacuum, (2) maintain a wellhead temperature less than 131 degrees F and either (3) maintain a nitrogen concentration less than 20% by volume or (4) maintain an oxygen concentration in each wellhead less than 5% by volume. The VR12GT4R and VR12GT05 are under vacuum and maintain wellhead temperatures below 131 degrees F, but has oxygen concentrations above 5%. Permit

conditions will be included to allow the wells to operate at a higher operating value for oxygen so the wells can remain active.

Less than Continuous Operation Petition (Section 8-34-305)

The facility can petition for wells for less than continuous operation. A review of their operating and maintenance schedule shows the well valves are in the minimum position resulting in the lowest flow rate for each respective well. The methane concentration in VR12GT04 and VR12GT05 has varied to a high of 57.6% to as low as 0.1% methane by volume while oxygen concentration remained above 5% oxygen by volume. By operating on a less than continuous basis, the wells can remain active. The petition for less than continuous operations for the wells must be renewed every 3 years. Permit conditions will be included for the renewal of the wells.

Federal Requirements

Emissions Guidelines for MSW Landfills: The S-1 Vasco Road Landfill is subject to the Emissions Guidelines (EG) for Municipal Solid Waste (MSW) Landfills, 40 CFR, Part 60, Subpart Cc. This regulation requires the facility to meet the EG requirements approved in the state plan for that District. For the Bay Area, Regulation 8, Rule 34 was adopted as the state plan for implementing these federal EG requirements. Thus, compliance with Regulation 8, Rule 34 constitutes compliance with the EG requirements.

NESHAPS for MSW Landfills: This landfill is also subject to eh NESHAPs for MSW Landfills (40 CFR, Part 63, Subpart AAAA). This NESHAP requires that subject facilities implement startup, shutdown, malfunction plans (SSM Plans) and comply additional reporting requirements. All applicable requirements are contained in the existing MFR permit. This facility is expected to continue to comply with these requirements.

State Requirements

This facility is subject to CARB's Landfill Methane Capture Rule (CCR, Title 17, Sections 95460-95476), which requires landfills to collect and control landfill gas and establish surface leak limits and methane control efficiency requirements for control devices. Section 95464(c) requires each wellhead to be operated under vacuum (negative pressure). The facility is in compliance with these requirements with the operation of the landfill gas collection system.

CONDITIONS

I recommend the following revisions to Condition #818, Part 2 and Part 3. The revisions to Part 2 will update the landfill gas collection system and the permitted number of installation and decommissioning remaining according to Application #29010. The revisions to Part 3 will reflect the higher operating values for oxygen concentrations and the less than continuous operating conditions for the wells. The revisions are shown below in the strike through and underline formatting:

COND# 818 ----------

For: S-1 Vasco Road Landfill - Waste Decomposition Process with Gas Collection System; Abated by A-4 Landfill Gas Flare;
S-12 Vasco Road Landfill - Waste and Cover Material Dumping;
S-13 Vasco Road Landfill - Excavating, Bulldozing, and Compacting Activities

No Changes to Part 1

2. The Permit Holder shall apply for and receive a Change of Conditions before altering the landfill gas collection system described in Part 2a below. Increasing or decreasing the number of wells or collectors, changing the length of collectors, or changing the locations of wells or collectors are all considered to be alterations that are subject to this requirement. The authorized number of landfill gas collection system components is the baseline count listed below plus any components added and minus any components decommissioned pursuant to Part 2b as evidenced by start-up/shut-down notification letters submitted to the District.
    a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below.
        ii) Main Gas Collection System Required Components
            Total Number of Vertical Wells: ~~110~~ 115
            Total Number of Horizontal Collectors: 6
        iii) Intermittent Gas Collection System Required Components
            Leachate Recirculation Wells: 4
            Leachate Recirc. Horiz. Collectors: ~~1~~ 0
            Horizontal Collectors: VR12GT4R and VR12GT05

    b. The Permit Holder has been issued a Change of Conditions (Application Number: 29010) for the landfill gas collection system alterations listed below.
        Installation of Vertical Wells: ~~100~~ 92
        Installation of Horizontal Collectors: 20
        Decommissioning of Vertical Wells: ~~150~~ 147
        Decommissioning of Horizontal Collectors: ~~15~~ 14

    Wells installed or permanently shut down pursuant to subpart b shall be added to or removed from subpart a in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415. The Permit Holder shall notify the District of the expected installation or shut-down date prior to commencing any component alterations pursuant to subpart b and shall maintain records of the initial operation date for each new well and the

permanent decommissioning date for each shut- down well. (Basis: Regulations 2-1-301, 8-34-301.1, 8- 34-304, 8-34-305)

3. The permit holder shall comply with the following landfill gas collection system operating requirements.
    a. The landfill gas collection system described in Part 2a(i) shall be operated continuously, as defined in Regulation 8-34-219 and Part 3b below. Wells shall not be shut off, disconnected or removed from operation without written authorization from the APCO, unless the Permit Holder complies with all applicable requirements of Regulation 8, Rule 34, Sections 113, 116, 117, and 118.
    (Basis: Regulation 8-34-301.1)
    b. For the specified wells and collectors listed below, the gas collection system operating requirements listed in Parts 3b(i-ii) shall replace the wellhead requirements identified in Regulation 8-34-305.2 through 8-34-305.4. All wells and collectors remain subject to the Regulation 8-34-305.1 requirement to maintain vacuum on each wellhead and to the Regulation 8-34-505 monthly monitoring requirements. The specified wells and collectors shall be deemed to be operating continuously, if the components are complying with Regulation 8-34-305.1 and any applicable limits in Part 3b(i-ii). In addition, Part 3b(iii) clarifies the applicable limits for vaults containing gas collection system components. If the Permit Holder discovers an excess of a Part 3b(i-iii) limit and corrects the excess in accordance with the Regulation 8-34-414 repair schedule, the excess shall not be deemed a violation of this part.
    (Basis: Regulations 8-34-301.1, 8-34-301.2, 8-34-303, and 8-34-305)
        ii) The Regulation 8-34-305.2 temperature limit shall not apply to the wells or collectors listed below. The landfill gas temperature in each of the components listed below shall not exceed 140 degrees F.
        ~~OEW-HA, OEW-HB,~~ EW-9, EW-33A, and EW-44.
        iii) The Regulation 8-34-305.3 nitrogen concentration limit and the Regulation 8-34-305.4 oxygen concentration limit shall not apply to the wells listed below, provided that the oxygen concentration in the landfill gas at the main header does not exceed 5% O2 by volume (dry basis) and the methane concentration in the landfill gas at the main header is not less than 35% CH4 by volume (dry basis). The permit holder shall monitor the landfill gas from the main header for oxygen and methane on a monthly basis to demonstrate compliance with this part.
        ~~OEW-6, OEW-HA, OEW-HB,~~ EW-9, EW-27~~, EW-29~~, EW-31A~~, EW-33,~~ EW-33A, EW-41R, ~~HZ-09-02, HZ-09-03, HZ-~~09- 04, ~~HZ-09-05, HZ-~~09-06, ~~HZ-~~09-07, and ~~HZ-~~09-08.

iv) This subpart applies to vaults containing gas collection system equipment, where the top of the vault is located at or near the surface of the landfill. The vault shall be monitored at both 1 cm from the vault (for comparison to the component leak limit of Regulation 8-34-301.2) and 2 inches above the vault (for comparison to the surface leak limit of Regulation 8-34-303).

a) If during an inspection the District's monitored readings show compliance with both the component leak limit and the surface leak limit, the vault and components within shall be deemed to be in compliance with Regulations 8-34-301.2 and 8-34-303. No further testing is necessary.

b) If the District's monitored readings show an excess of either the component leak limit or the surface leak limit, the operator shall comply with the Regulation 8-34-415 Repair Schedule for Landfill Surface Leak Excesses, until the source of the leak can be identified. The vault shall be opened and allowed to air out for at least 10 minutes. The collection system components within the vault shall be re-monitored at 1 cm from the components and the landfill surface surrounding the vault shall be re-monitored at 2 inches above the surface.

c) If the re-monitoring (after airing the vault for 10 minutes) shows no component leaks and no surface leaks, the vault and components within shall be deemed to be in compliance with Regulations 8-34-301.2 and 8-34-303.

d) If the re-monitoring shows a component leak, or the operator's further evaluation determines that the source of the emissions excess was a collection system component, then a violation of 8-34-301.2 shall be deemed to have occurred; and the operator shall take all necessary corrective action and shall comply with all applicable reporting requirements.

e) If the re-monitoring shows a surface leak but not a component leak, the operator shall continue to comply with all applicable provisions of the Regulation 8-34-415 Repair Schedule for Landfill Surface Leak Excesses.

c. The landfill gas collection system described in Part 2a(ii) is not required to be operated continuously and is subject to the alternative wellhead standards described below, as allowed under Regulation 8-34- 305. The CCR, Title 17, Section 95464c Wellhead Gauge Pressure Requirement continues to apply to these components.

ii) These components shall be connected to the vacuum system as needed to prevent violation of applicable surface and component leak limits.

iii) This subsection applies to these components instead of the limits in Regulation 8-34-305.3 or 305.4. The oxygen concentration in each wellhead shall not exceed 15% by volume. Regulation 8-34- 414 and subpart 3c(iv) below may be used in conjunction with this alternative wellhead limit.

iv) The owner/operator shall monitor each component on a monthly basis for gauge pressure, oxygen, methane, and temperature, regardless of whether the component is connected to vacuum or not.

v) The component may be disconnected from the vacuum system if any of the following are detected:
oxygen > 15% or temperature > 131 oF.

vi) The permit holder shall renew the petition for less than continuous operation every 3 years.

(Basis: Regulation 8-34-404 and CCR, Title 17, 95468(a)(1))

No changes to Part 4 through 23

RECOMMENDATIONS:

I recommend a Change of Condition (Condition #818) be issued for the following:

S-1 Landfill – Waste Decomposition Process

_____

Loi Chau, Air Quality Engineer Date